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Regional partnerships for a transition to a sustainable energy society

A comparative case study of regional partnerships in Germany
between 2000-2010

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Abstract

A transition of society to more sustainable energy solutions appears necessary because traditional energy supply is endangered and the use of traditional energy sources has negative impacts on the environment. Partnerships are collaborative arrangements through which actors can strive for sustainability. The literature review reveals that regional partnerships in the sustainable energy field compose a new focus of research on partnership and governance. This research aims to analyse in what way and to what extent regional partnerships may contribute to solving the problem of a transition to a sustainable energy society.

An analytical model is derived from a theoretical framework based on partnership, capacity and network theory. On the basis of both the theoretical framework and the analytical model three cases are selected. All cases are located in urban areas, have an objective that relates to sustainable energy related issues and involve actors from at least two spheres of society. Germany is chosen as the context of the regional partnerships due to the quite favourable environment for renewable energies. In a comparative case study the selected regional partnerships are analysed by means of a document review and semi-structured interviews. The analysis is guided by the predefined analytical model. It assumes that the package deals made, the actors involved, their relations, partnership capacities and the context in which regional partnerships are embedded shape regional partnerships' contribution to solving the transition problem. Relation capacity is studied by employing a network analysis tool.

The regional partnerships take different approaches to the transition problem. In Hannover region, a regional climate protection agency promotes the development of sustainable technologies and a change in behaviour of citizens. An energy region association with a focus on business development, research projects and networking implicitly aims for a structural change in Nuremberg region. In Munich, an alliance for climate protection facilitates network building and activates business and civil society to implement measures for climate protection.

The analysis shows that regional partnerships facilitate particularly information exchange and embrace a pragmatic network strategy. Hence, they often fulfil a function of information provision and dissemination. The objective of the regional partnerships studied is strongly shaped by economic interests. Moreover, regional partnerships remain dependent on state actors which often take on an important role. Thus, the contribution of regional partnerships to solving the problem of a transition to a sustainable energy society is perceived as small. Despite the mixed feelings, the policy strategy of regional partnerships is not discarded and further research on the effects of regional partnerships is recommended.

Acknowledgements

This thesis has been written as a part of the Master's programme Sustainable Development in the track Environmental Policy and Management at Utrecht University. In my opinion, the usefulness of interaction between different actors of society is one of the main assumptions of governance theory for sustainable development. This thesis proposes regional partnerships for a transition to a sustainable energy society as a new focus in research on partnerships and governance. Governance and related concepts are partly idealistic. Thus, it was mostly exciting to confront theory with (governance) practice. The interviews with actors of the identified regional partnerships were thus both challenging and fun.

Interaction is not only essential for sustainable progress, but also this research relies on many different 'actors'. This thesis would not have been possible unless the contribution of the 35 interviewees from the identified regional partnerships in Hanover, Nuremberg and Munich. Thank you for the time and information you shared with me.

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List of Abbreviations

BMU	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Federal environment ministry)
chp	combined heat and power
EC	European Commission
EEA	European Environment Agency
EU	European Union
ICLEI	International Council for Local Environmental Initiatives
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
ISEP	Institute for Sustainable Energy Policies
KLEX	Klimaschutzprogramm EXPO-Region Hannover (climate protection programme EXPO region Hanover)
OECD	Organisation for economic co-operation and development
REN21	Renewable Energy Policy Network for the 21st Century
UNDP	United Nations Development Programme

1. Introduction

The vital issue is that we are living off our finite resources. We need to leave behind limited traditional energy stocks and arrive at renewable energy flows (Schölkopf, 2010)¹.

If there is anything to be learned from history, it's that we need to face the harsh reality of fossil fuel scarcity and begin something like a Manhattan project to develop clean, economical and preferably sustainable new sources of energy. Just as important, we need to innovate on the side of conservation and efficiency (Sass, 2006).

As expressed in the two introductory quotes, the traditional use of energy causes wide concern. Hence, changes in energy use and resources are advocated. "Processes of structural change in major societal subsystems" are called *transitions*. They "involve a shift from the dominant 'rules of the game', a transformation of established technologies and societal practices" (Meadowcroft, 2009, 2).

The two main reasons to strive towards an energy transition are problems related to energy supply and environmental impacts of the use of fossil fuels. Both drivers are linked to our society's continuing reliance on fossil fuels for energy and goods production (Meadowcroft, 2007a).

Energy supply is threatened by depleting resources, energy security and dependency on few exporters. The share of fossil fuels in energy supply has not significantly decreased and renewable energies' share is negligible. A continued use of fossil fuels will deplete resources in the long-run and lead to fossil fuel scarcity. Meanwhile import dependency of OECD countries is rising while the number of exporting countries is declining (Jefferson, 2006). Increasing demand in addition to shortages, and conflicts in the exporting countries can cause insecure supplies. In the European union, a declining energy production, a fragmented energy market and rising energy prices are threatening energy security (EEA, 2008).

Energy production and use are likely to continue putting pressure on the environment because combustion of fossil fuels produces urban smog, acid deposition and toxic emissions. Moreover, greenhouse gas emissions from energy use, especially CO₂ emissions, are assumed to be the major cause of climate change (Meadowcroft, 2007a; IPCC, 2007).

Models predict that global demand for fossil fuel will keep growing and at the same time will rapidly increase the energy-related CO₂ emissions. Europe would be no exception from the increase in primary energy consumption (EEA, 2008). Hence, if today's energy path is continued and there is no change witnessed in energy policy, our society's dependence on fossil fuel and its consequences will aggravate (IEA, 2009). Within the European Union (EU), a positive change between the years 2020 and 2030 can only be achieved if more stringent policies are adopted. The measures need induce significant reductions in primary energy demand and higher penetration rates for renewable

¹ "Wir leben von der Substanz bei den Ressourcen und das ist der entscheidende Punkt, wir müssen weg von den Vorratsenergien, hin zu den Flussenergien." Interview from June 11, 2010.

energy which in turn can lessen the environmental pressure and the dependence on oil (EEA, 2008).

Dutch researchers and politicians developed the notion of ‘transition management’ as a “forward-looking, adaptive, multi-actor governance aimed at long-term transformation processes that offer sustainability benefits” (Kemp & Loorbach, 2006). *Sustainable development* describes the now widely known notion of “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). More pragmatically, it can also be called ‘sustainable progress’ which emphasises a “process of progressive social change” (Meadowcroft, 1997, 429). New governance modes are often assumed to better tackle complex challenges such as transition with the goal of sustainable development.

Governance can be characterised as a form of societal steering. It refers to “the patterns that emerge from the governing activities of social, political and administrative actors” and is “backed by shared goals that may or may not derive from legal or formally prescribed responsibilities” (Jordan, 2008, 21). In contrast, traditional governing relies on the authority and sanctions of government (Stoker, 1998, 17). Governance for sustainable development is about “reforming practices of socio-political governance to encourage shifts toward a more environmentally sustainable and equitable pattern of development” (Meadowcroft, 2009).

Partnerships are often considered relatively new arrangements in the environmental governance regime. In accordance with Glasbergen (1998) partnership can be understood as a policy strategy. *Intersectoral partnerships* are to that effect defined as “collaborative arrangements in which actors from two or more spheres of society (state, market and civil society) are involved in a non-hierarchical process, and through which these actors strive for a sustainability goal” (Van Huijstee et al., 2007, 77).

At the global policy level, international agreements aiming to tackle climate change have been adopted but not been very successful so far. The continuity of the spirit of the Kyoto protocol to the United Nations Framework for Climate Change is still uncertain. In energy policy EU “member states have retained almost complete national autonomy” (Patt, 2010, 33). The EU relies mainly on formulating energy strategies, setting targets and regulation of emissions, (renewable) energy, technologies and transport - an example of regulation being the Euro standards for air pollution by cars.

The interest of this research lies in the fact that within the last decade regional and local initiatives in the field of climate change and sustainable energy have proliferated. For example, communities and towns in Germany adopted strategies for climate protection and aim to implement sustainable energy solutions. Some initiatives embrace a partnership approach².

On their transition path towards a low-carbon society based on sustainable energy, regional partnerships make specific choices, which may constitute a package deal. The transition goal is formulated by a government or a set of regional actors that engage in governance. *Sustainable energy* or transition to sustainable energy for this research is a comprehensive programme with a focus on making energy use and production more sustainable. It encompasses energy production through renewable energies by for example solar panels, wind mills and combined heat and power plant, sensible energy consumption and energy efficiency measures in relation to buildings and mobility, for instance.

²Eco-cities and Local Agenda 21 can feature related governance processes. In this research the focus is on the partnership strategy employed in urban regions. The concept of regional partnerships for a transition to a sustainable energy society puts an emphasis on the issues, actors selected and the relationships and capacities developed. Regional partnerships are understood as a reflection of the concept of governance for sustainable development.

Moreover, regional partnerships establish (formal) relationships between different actors and develop certain capacities which may influence the shape of a partnership.

Evaluation of the local agenda 21 process in Europe initiated by the 1992 Rio de Janeiro 'Earth summit' indicates that local actors are very committed and that the local agenda 21 is supportive for achieving sustainable development (Evans & Theobald, 2007). Moreover, "the multiple roles of the local governments - as decision-makers, planning authorities, managers of municipal infrastructure, and role models for citizens and businesses" (REN21 et al., 2009, 4), makes them ideal drivers of change. Thus, it seems likely that regional partnerships in cities or city regions, which involve local governments and aim to transform societies' energy production and use, can be conducive to an energy transition.

This research will analyse the contribution of regional partnerships to solving the problem of transition to a sustainable energy society. Contribution is understood as sharing, in this case sharing responsibilities and joint action to proceed towards a sustainable energy society. A short evaluation to what extent regional partnerships share the responsibility will be given. However, effectiveness of partnerships will not be addressed. To evaluate whether partnerships have effectively reached their goals would require a comprehensive impact assessment which is not in the scope of this research. Allocating impact of partnerships may turn out difficult due to the background noise of other factors. Moreover, outcomes could also be attributed to international or national measures (Biermann, Mol & Glasbergen, 2007).

Therefore, the focus of this research will be on the ways by which regional partnerships aim to contribute to the transition path. It is aimed to evaluate the decisions taken in the package deals, the inclusion of actors, the relations between them, the capacities involved and developed in the context of policies and strategies at the local, national and international level in order to outline a picture of the role and functions of regional partnerships for the envisaged transition. According to Biermann, Mol & Glasbergen (2007) in-depth qualitative case studies in comparative research are suitable for understanding the contribution of partnerships.

The proposed research will be on partnerships in urban regions. Urban regions are the vibrating pulse of Western societies (Healey et al., 1995). Moreover, urban regions are often emphasised as important actors for climate change because they are the implementing level of climate action (Bulkeley & Kern, 2006; Corfee-Morlot et al., 2009). As practical examples three cases from Germany are chosen. Germany has a relatively favourable environment for investments in renewable energy, which may lead to more partnerships (REN21, 2009). Furthermore, there are potentially a lot of cases which have not yet been researched and third, all cases are embedded in the same national context.

1.1. Research field and knowledge gap

The focus of this research is regional partnerships for a transition to a sustainable energy society. This links up to three research fields: local renewable energy policies, partnerships and networks.

The handling of energy topics in regions and communities is a research field that currently attracts many researchers. The current status of local renewable energy policies is the focus of a collaboration by the Renewable Energy Policy Network for the 21st Century (REN21), the Institute for Sustainable Energy Policies (ISEP) and ICLEI Local Governments for Sustainability (REN21 et al., 2009). They identify an

agreement of local leaders on the benefits of renewable energy. Five main types of local policy are used to promote renewable energy, with target setting being the most common policy.

The interdisciplinary project 'EE-Regionen' examines conditions for success for self-sufficient energy production in small regions (Aretz et al., 2009). Beermann and DeENet both focus on 100% renewable energy regions. Whereas Beermann compares four 100% regions in Europe, DeENet is establishing a database of all German regions aiming for a defined percentage of renewable energies (Beermann, 2009; DeENet, 2009). Beermann's case studies verify the positive role of engaged local pioneers and a high degree of citizen participation as success factors.

Mander (2007) studies advocacy coalitions in regional renewable energy policy which are built in order to influence national policy planning. She confirms the increasing role of (regional) governance for energy policy in the UK and emphasises the need for appropriate levers and an adequate framework provided for by the government to enable a cooperation of diverse actors. In his review of Local Agenda 21 in Leicester in the context of the UK Environment city initiative, Roberts (2000) analyses the role of partnership. He emphasises the importance of local needs and capabilities to respond, belief in and presentation of solutions.

Partnerships can be found at global, national and subnational levels. Selsky & Parker (2005) divide the partnership literature in four categories according to the composition of participants: partnerships between non-profit organisations and businesses, between governments and businesses, between governments and non-profit organisations and partnerships engaging all three sectors. Often partnerships are related to developing countries (Van Huijstee et al., 2007), see for example Bitzer et al. (2008)'s research on an intersectoral partnership for a sustainable coffee chain. A transnational partnership between businesses and NGOs is the Forest Stewardship Council researched amongst others by Pattberg (2007). Visseren-Hamakers et al. (2007) examine development cooperation in their research on North-South partnerships for marine biodiversity.

In the field of renewable energies Glasbergen & Groenenberg (2001) analyse two contractual agreements between an environmental NGO and companies in the construction and solar panel sector. Their focus is on the factors contributing to and hindering success. The partnerships did not achieve a large breakthrough for sustainable energy. Limiting factors were an ad hoc approach, lack of professionalism, openness of partnerships and lack of governmental support for incentives set by partnerships.

Network theory assumes that networks offer opportunities for and constraints of behaviour for actors embedded in these networks (Brass et al., 2004). For instance, Glasbergen (2010) uses network analysis as a heuristic device to understand the development of and influences within global action networks (GAN). The networking processes reveal certain conditions that are underexposed in collective action theory. The characteristics of an issue and a linked group of actors; internal coherence based on membership and leadership; involvement of governmental organisations and vertical, professional organisation play an important role for collective action. Provan et al. (2007, 511) emphasise that especially qualitative methodologies could yield "additional insights into the structure and content of relationships, their development over time, the initial conditions at founding, and changing contexts" which would at the same time be useful to understand the "functioning of networks as a unique form of governance". By using a mapping tool from network analysis valuable insights on the network nature and its influence on the success of partnerships may be gained (Allee & Schwabe, 2009; Waddell, n.d.; Schiffer, 2007).

According to Glasbergen, there is an ongoing need for an analysis of the role and function of different partnerships, the conditions of their performance and their implications for the governance paradigm in the context of sustainable development (Glasbergen et al., 2007). Moreover, Mol (2007) purports that partnerships are diverse, empirically often fail or show limitations and lack theoretical underpinnings. He furthermore criticises the managerial and normative focus and reminds of the important role of states in partnerships.

Also, Glasbergen et al. (2007, 7) argue that governments still play a major role in policy and law making. Hence, the role and success of partnerships is dependent on the role of governments because partnerships can only add to the solving of for example energy problems. It can be argued that governments and partnerships are thus interdependent because partnerships at the national and subnational level arise in a certain institutional context. Research on partnerships for sustainability should therefore critically analyse the role of the state in environmental governance.

The literature review on the three most related fields of research reveals that regional partnerships for a transition to sustainable energy use have not been researched in depth. Moreover, the emphasis of research on energy regions seems to be on small-scale regions in the size of villages or agglomeration of villages. Researching city regions aiming for a transition to sustainable energy and analysing their partnership strategy will thus deliver new knowledge on the value of regional partnerships and contribute to enhancing governance for sustainable development.

1.2. Research purpose and questions

The purpose of this research is to understand how regional partnerships can contribute to solving the problem of a transition to a sustainable energy society. Thus, first the partnership itself is analysed - its content, actors, network and capacities. A second focus is on the partnership's role in view of the socio-political context. The research purpose is achieved in five steps, by

- describing the package deal which regional partnerships consent to and its implementation,
- analysing the involvement of different actors of regional partnerships in the package deal,
- deconstructing the relationships between the actors of the partnership,
- assessing the capacities introduced to and developed in the partnerships,
- and evaluating the role of regional partnerships in relation to their socio-political context.

The following central question is to be answered: ***In what way and to what extent can regional partnerships contribute to solving the problem of a transition to a sustainable energy society?***

The research will be guided by following sub-questions:

SQ1 What decisions are made on the content of the package deal and how is the package deal implemented? (descriptive)

SQ2 Which actors are involved and to what extent are they involved in the single elements of the package deal? (descriptive)

- SQ3 What relationships are developed among the actors and how can the emerging network be mapped? (descriptive, evaluative)
- SQ4 To what extent does a regional partnership require and establish specific capacities for achieving the transition? (descriptive, evaluative)
- SQ5 Which role can a regional partnership play in regard to the socio-political context? (evaluative)

1.3. Research strategy

Theory on governance (for sustainable development) and transition management ideas form the theoretical background of the research. Partnership, capacity and to a lesser extent network literature build the more specific theoretical basis of the research. On the basis of a document review and interviews the issues included in the package deals, the actors, partnership capacities and the relations within partnerships are analysed. The document review and interviews will also help to analyse the socio-political context of the partnerships. By evaluating the cases and their embeddedness in the broader context of transition and energy policy, the role regional partnerships can play in a transition to a sustainable energy society will be understood (see figure 1.1).

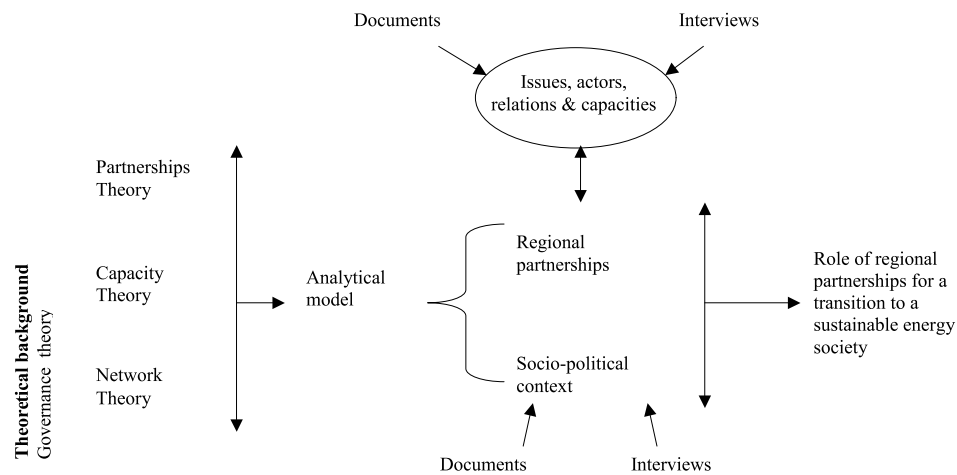


Figure 1.1.: Research strategy

2. Theoretical framework

The theoretical framework is based on governance for sustainable development. The framework consists of three elements. Partnership theory explains the characteristics of a partnership approach to governance. Capacity theory sheds a light on certain abilities that may enhance the manner partnerships work. The section on network theory emphasises the importance of relations for governance and outlines the use of social network analysis. Throughout the framework important elements for the analysis will be indicated by use of *italic font*.

2.1. Partnership theory

Our current governance systems need to go through structural change in order to perform better and solve the problem of sustainable development (Loorbach, 2007). As a pluralistic approach, “governance for sustainable development [...] has become an effort to structure cooperatively the relationships of stakeholders around a sustainability issue” (Glasbergen, 2007). Partnerships can be regarded as a relatively new mode of governance that have widened the governance agenda by introducing new non-state actors, new levels, interactions between these and new rules and steering modes.

There exist different classifications of partnerships. Mol (2007) differentiates between public-private partnerships that have their origin in the 1970s and those diversely labelled partnerships that originate in the 1990s. The first have foremost an instrumental focus, are often viewed from managerial and organisational perspectives and are typically a cooperation between government and private sector. The latter have more diverse actor combinations, are also active on the international and global level and more based in the governance literature. As diverse as the partnerships are also the labels attached to them. They are designated as cross-sector or strategic partnerships, public policy networks, public-private partnership, self-governing networks or issue management alliances (Van Huijstee et al., 2007; Mol, 2007).

Furthermore, partnerships can be based at different levels of society and fulfil different functions. A distinction between two meta-types of partnerships, namely those at the local and national level and those at the transnational or global level, is according to Biermann, Mol & Glasbergen (2007) crucial. Partnerships have different roles at these levels. For example partnerships at the national level often partly replace or complement conventional state institutions in tackling sustainability issues. Institutional structures are relatively clear and relations with national and local state agencies are more formally established. States may also catalyse partnerships at the national level and ensure wide representation and a fair process. In contrast, transnational partnerships act in an institutional void, deal with topics that are hardly dealt with by conventional governance systems and have no authority that could intervene.

Finally, Biermann, Chan et al. (2007, 241) distinguish between three empirically studied functions of partnerships. First, partnerships can serve to set rules and standards. For example, the FSC label is a transnational rule-setting mechanism of private governance. A second function is identified by Glasbergen & Groenenberg (2001), namely

the provision and dissemination of information in their specific case on a national solar panel project. Third, partnerships may also implement rules or policies such as those in the Global Compact and emission trading systems (Biermann, Mol & Glasbergen, 2007; Börzel & Risse, 2005). In addition, Börzel & Risse (2005) assume that partnerships may provide a service - on the international level an example for a service are development aid institutions. Most of the functions mentioned should be equally applicable to the regional level but on a smaller scale. For example, efficiency standards for buildings may be set at the local level (Stadt Freiburg, 2009).

Partnerships have two main characteristics. One, a non-hierarchical process of decision-making to reach a common goal and two, the involvement of *actors* from two or more spheres of society: state, market and civil society (Van Huijstee et al., 2007). In the view of network management the aim of deliberation is “to reach consensus among the parties involved; its tangible product is a package deal” (Driessen & Vermeulen, 1995, 155). Consensus does not implicate that partners agree on every aspect but it presumes that there is a willingness to cooperate if participants expect their own interests will be served by a large degree. The meaning of sustainable development is consequently determined in “an interactive process of social dialogue and reflection” (Jordan, 2008). The result of this process can be called a *package deal*.

The involvement of different actors entails that all partners have a particular interest and represent their sectors’ arguments and expectations. Mostly, the different background and way of thinking is seen as the strengths of partnerships (Glasbergen, 2007). Yet, it might be seen as a disadvantage because participants will follow their rationalities and be loyal to their values and interest groups. Another reason why partnerships might be labelled a governance anomaly is that they have no formal political power and arise in antinomy with the separation of powers and the juridical foundation of the tasks and responsibilities of government (Glasbergen, 2007, 6).

From an actor perspective the purpose of collaboration is collaborative advantage. It can be interpreted as a form of synergy which helps to achieve a result that could not have been achieved by any of the partners acting alone (Huxham & Vangen, 2004). However, before partnerships are formed and synergy arises mutual trust has to be developed. As Hardin ((Ed.) 2006) formulates it, trust relationships develop if action between two or more actors are reciprocated. Trust is to be understood as a conception of trustworthiness that the actors accrue. Partnering processes often build upon positive experiences in the past. Building new trust is facilitated by setting rules and allocating responsibilities to overcome differences in power and articulate mutual respect. A contract can consolidate the established trust and convey continuance and stability (Glasbergen, 2007).

Regarding the *context* of regional partnerships, the literature on partnerships assumes that nation-states need to redefine their roles in the view of state failures and changing conditions of globalisation and complexity (Mol, 2007, 227). Whether new governance mechanisms undermine the state or the state remains a critical actor of public accountability and legitimacy is however an ongoing dispute. Some scholars criticise partnerships for their lack of democracy because they fall short on representation, interaction and accountability (Biermann, Chan et al., 2007; Meadowcroft, 2007b, see). Meadowcroft (2007b) is positive about the democratic features of partnerships, identifying indirect ways of accountability and representation. It is also debated whether the new mechanisms help address governance deficits for example in implementation and participation (Biermann, Chan et al., 2007). Glasbergen (2007), Meadowcroft (2007b) and Mol (2007) all reason that the state remains a major player in governance.

Consequently, government and private initiatives are still perceived as interdependent. Government policies for instance influence the success of partnerships. Partnerships themselves are assumed to only add to the solving of sustainability problems (Glasbergen, 2007).

2.2. Capacity theory

Often partnerships are attributed problem-solving capacity. Some partnerships might also be formed with a specific focus on capacity building (Biermann, Mol & Glasbergen, 2007). *Capacity* is “the ability of the whole institution, from individuals through to organisations and the legislation and policy instruments used, to undertake a task” (Meene & Brown, n.d.), for example to provide the public with energy.

Capacity building or the more recent notion of capacity development are concepts that are mainly used in the field of development work and research but also increasingly in public administration. Capacity building describes mainly technical support methods for strengthening capacity. The newer concept of capacity development implies a “broader focus and includes empowerment, culture, social capital, and an enabling environment” (Van Loon et al., 2010, 101). Also due to its pragmatic use capacity is a vague concept that is very differently defined in literature. The positive aspect of the capacity concept is however that it emphasises the structural characteristics of action and the possible failures of interventions. Moreover, it is closely related to political development or modernisation which is basically a process of capacity-building. Third, it is also applicable as a tool of comparison between different abilities of different actors and the degree of development of these abilities (Jänicke, 1997, 3).

There exist different categorisations for analysing capacity. Often sub-components of institutional capacity are analysed. Meene & Brown (n.d.), for instance, evaluate sustainable urban water management by assessing human resources, management, relations and institutions. Similarly, Healey (1998) defines abilities of stakeholders in collaborative (urban) planning as knowledge and relational resources as well as mobilisation capacity. Governance capacity, influenced by actors, their strategies, systemic framework conditions, the situational context and the problems themselves, builds the basis for Jänicke (1997)’s analytical framework. The UNDP (2010) in addition emphasises leadership and accountability as major influences on capacity and identify three interdependent levels where capacity is developed: enabling environment, organizational level and individual level. Van Loon et al. (2010) build on an OECD framework and develop a very comprehensive overview that also includes the relations and coherence of six different sub-capacities.

Examples of role model green cities, for example Freiburg and Leicester, emphasise similar factors as those mentioned above in their lessons learned. Hoppe et al. (2009) conclude that for Freiburg, for instance, a consensus on climate protection remaining a priority, a key political promoter, financial incentives and in-house knowledge have been important. A facilitator, inclusion of the local population and the creation of a shared vision have been crucial for Leicester environment city (Roberts, 2000).

The theoretical conceptualisations of capacity have different understandings of (institutional) capacity and their different categories overlap. In table 2.1 a categorisation for analysing the *capacities* of regional partnerships is developed which also considers the lessons learned from the two exemplary cities. It serves to simplify the analysis of capacities of partnerships. Most of the capacities are related to the organisational level of the partnership, however, some capacities, for instance leadership, relate to the

actor level. The selected capacities follow no specific order and are equally important. However, most of the capacities are interrelated.

Table 2.1.: Potential partnership capacities

Capacity	Elements
Institutions	Local constitutional, institutional and legal structure (Jänicke, 1997; UNDP, 2010)
Organisation	Management practices and systems; mission, vision and strategies (UNDP, 2010; Van Loon et al., 2010)
Knowledge	Internal and external expertise on the issue (Healey, 1998; Jänicke, 1997)
Leadership	Ability to influence, inspire and motivate others (UNDP, 2010; Healey, 1998; Gray, 2007)
Accountability	Responsibility towards right holders (UNDP, 2010)
Resources	Finances, personnel (Van Loon et al., 2010; Biermann, Chan et al., 2007)
Relations	Influences, exchanges, trust (Healey, 1998)

The categorisation assumes that the local constitutional, institutional and legal structure, with its institutionalised (hard) rules such as laws and contracts and internalised norms, such as codes of conduct and accepted values, constitute institutional capacity (Jänicke, 1997; UNDP, 2010). It backs the actions of the partnership.

Secondly, for organisational capacity, management practices and systems that allow for effective functioning (UNDP, 2010) together with a clear mission, vision and strategy of the partnerships are important (Van Loon et al., 2010; Roberts, 2000). A clear goal of the partnership simplifies the achievement of the set targets. Furthermore, monitoring and evaluation systems help identify the progress in achieving targets set (Hoppe et al., 2009).

For the third capacity, especially internal but also external expertise play a role. The conditions under which knowledge is produced, distributed, interpreted and applied influences the performance of partnerships (Healey, 1998; Jänicke, 1997; Hoppe et al., 2009).

Leadership describes the ability to influence, inspire and motivate others to achieve or even go beyond their goals. It can be situated at the individual or the organisational level (UNDP, 2010). Good leadership mobilises the relevant stakeholders of a certain issue (Healey, 1998). Leadership skills are also required to ensure the integration of diverse points of view and need to be applied in every phase of a collaboration (Gray, 2007)

For partnership as a governance mechanism, accountability appears important. The capacity denotes the obligation of fulfilling a certain task and thereby being accountable to right holders. It allows organizations and systems to monitor, learn, self-regulate and adjust their behaviour in interaction with those to whom they are accountable (UNDP, 2010).

Financial means and personnel constitute the resources of a partnership. They are particularly aligned to the expectation that partnerships may fill the implementation deficit (Biermann, Chan et al., 2007). Sufficient financial means and the ability to acquire further funding from other sources than government supports the implementation of measures and projects (Biermann, Chan et al., 2007; Van Loon et al., 2010; Hoppe et al., 2009; Roberts, 2000).

Relations signify the importance of links between different actors. Influences, exchanges of knowledge or resources and the development of trust are all notions of a relation (Healey, 1998).

2.3. Network theory

The network approach focuses on the *relations* among actors and their structured patterns of interaction. A *network* is according to Brass et al. (2004, 795) a “set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes” in which nodes are seen as individual, unit or organisational actors “embedded within networks of interconnected relationships that provide opportunities for and constraints on behavior” (Brass et al., 2004). The network perspective can be useful to emphasise the synergy that might arise from relationships. Network analysis denotes two functions. It is an analytical concept that defines the view on the researched aspect but it is also a tool to map relationships. Waddell et al. (2009) affirm that visual diagnostics can clarify complex structures by supporting the “understanding of who is the system, how participants or ideas relate, how work actually gets done, where there are key leverage points, and what is the source of conflict in the issue system” (Waddell et al., 2009, 3). In their understanding, network analysis is foremost a mapping tool that clarifies complex issues and structures. Social network analysis is the classical way to analyse relationships between organisations and the most common type of the visual diagnostic mapping approach (Waddell et al., 2009; Waddell, n.d.). This analysis tool is used to describe relationships between nodes with a single line or arrow. Nodes are seen as individuals, parts of organisations or whole organisations (Waddell et al., 2009). The focus of this type of analysis is on the structure of relationships. Furthermore, network analysis can also focus on the exchange of intangibles or values (Allee & Schwabe, 2009; Waddell et al., 2009).

2.4. Analytical model

The analytical model presented in this section will be used to structure the case studies in the chapters 5-7. The model is based on the elements of the theoretical framework indicated earlier in this chapter. The underlying assumption of figure 2.1 is that regional partnerships can play a transformative role for the transition to a sustainable energy society. It is assumed that the package deals, the actors involved, their relationships, the (developed) partnership capacities influence and the socio-political context shape the way regional partnerships (independent variable) can contribute to solving the problem of a transition to a sustainable energy society (dependent variable)³.

The package deal and the actors are the basis of the analysis. The package deal describes the issues that the partnership focuses on, the decisions that were taken on the content and the way the package deal is implemented. Actors are those persons that formally participate in the regional partnership. It is assumed that different actors and actor groups will be working on different problems. By emphasising the involvement of actors an actor approach is employed.

Furthermore, the element ‘relations’ indicates the building of relationships and actor groups. A network approach is chosen as an addition to the actor approach to put

³The sub-questions defined in section 1.2 are indicated in the model by referring to the sub-questions (SQs) numbers.

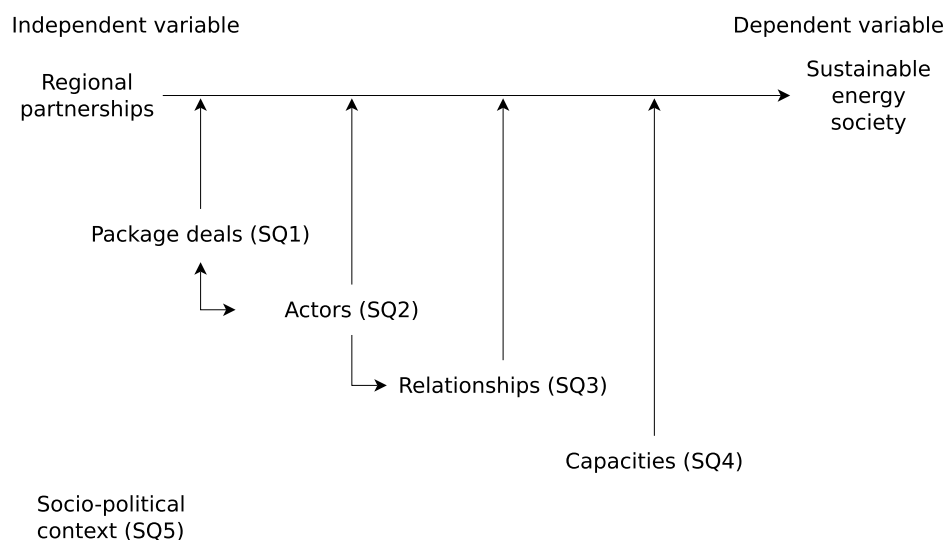


Figure 2.1.: Analytical model

emphasis on the relations emerging within partnerships. To analyse and map the relations emerging between the actors the method of network analysis will be employed to sustain the argumentation. The mapping of relations will help to define the relation capacity within the partnership. Emerging networks may have a synergetic effect which help make the partnership an added-value for the transition path.

For tackling the problem of a transition to a sustainable energy society, partnerships must have certain capacities. Partnership capacities are a factor that is implied in the interaction of the package deal, actors, relations and the regional partnership. The categorisation of capacities made for this research is explained on page 10 in the section on capacity theory.

Regional partnerships are embedded in a socio-political context that is constituted by regional, national, European and global energy policies and strategies. The socio-political context may also include the public opinion on the problem dealt with (Jänicke, 1997). Both the opinion and the general actions influence the opportunity for the partnerships to deal with a sustainability problem.

All five research elements, package deals, actors, relationships, partnership capacities and the context help understand the role and functions of regional partnerships to a transition. By considering both the embeddedness in the broader socio-political context and the collaboration of actors, an institutional and an actor approach are combined similar to the transactional model on partnerships employed by Visseren-Hamakers et al. (2007).

3. Methodology

The research question will be answered by employing a comparative case study. A small sample of three cases is used to throw light on the topic of regional partnerships. This type of analysis focuses on the comparison of cases according to defined categories. By comparing the cases, the rather new field of regional partnerships is explored. Due to the exploratory nature of the research, descriptive and evaluative knowledge is produced (Verschuren & Dooreward, 1999, 78). Assumptions made in the analytical model are mostly based on partnership theory. However, this thesis abstains from making explicit hypotheses because this would restrain the exploration of the field. The chapter discusses the selection of cases, data sources, the method of data collection and data analysis.

3.1. Selection of cases

In accordance with the research question, regional partnerships engaged in sustainable energy solutions make up the research object. For the selection of cases purposive sampling based on the elements defined in the theoretical framework and analytical model is used (Boeijs, 2010, 35). The cases are specifically selected because they can potentially teach a lot about the way regional partnerships contribute to solving the problem of a transition to a sustainable energy society. Therefore, they have low external validity. Findings are not valid for all regional partnerships existing. However, an analysis of further varying cases can result in inductive generalisation (Boeijs, 2010, 180-181). Following criteria are used for the selection of the cases:

- The regional partnership is located in Germany.
- The regional partnership is based on an agreement to cooperate.
- The regional partnerships includes several issues in a package deal.
- The regional partnership involves actors from at least two spheres of society (state, market and civil society).
- The regional partnership is located in an urban area which has a population above 500,000 citizens.

Hanover, Nuremberg and Munich⁵ have been identified as suitable cases. There are more cases that show cooperation between different actors. However, the variety of actors and the selection of issues is often narrow. Moreover, the locations have often a very rural character. The cases selected all show a cooperation which can be labelled as partnership approach and implicitly or explicitly aim to achieve a transition to a sustainable energy society. Their actual aims may differ (see pages 18,29 and 39). Most of the collaborations consist mainly of state and market actors but NGOs do also play a certain role.

The cases are analysed within a historical and socio-political context in order to increase the transferability of the research. The time frame reaches from the year 2000

⁵In the research the English names of the towns Nürnberg and München are used.

Table 3.1.: Overview of the selected regions

city/region	Hannover	Nuremberg	Munich
type of partnership	public-private partnership	energy region association	alliance for climate protection
start	2001	2001	2007
CO ₂ reduction goal (base year)	40% by 2020(1990)	min. 40% by 2020(1990)	50% by 2030(1990)
population size (city)	1.1m (520,951)	3.5m (503.638)	2.5m (1,367 m)
area in km ² (city area)	2,290 (204)	20,544 (186)	5,504 (310) ⁴

till July 2010. To understand the development before and after the establishment of the partnerships important events from the 1980s on are taken into account.

3.2. Research material and data analysis

Desk research of scientific journal articles and books, internet documents and information material on regional partnerships available online or via contacts, build the basis for the theoretical framework and the analytical model. These are also used to understand the socio-political context.

For understanding the package deals, the actors, their relations and capacities, the main data source are interviews. It is complemented by data collected from reviews of web pages, regional partnership documents, leaflets, reports and studies⁶. The selected cases are each visited for about one week with Hanover being visited first and Nuremberg and Munich following later.

The choice of interviewees is based on following criteria: importance and role of actors, diversity, representativeness for other actors, involvement in issues, and knowledge on the respective partnership. In the process of interviewing a few more interview partners were found using the ‘snowball’ method. Most of the interviews were conducted in person. Some interviews, especially for the Nuremberg case, are conducted by telephone due to non-availability of interviewees during the field visits. In general, it was attempted to conduct interviews with the person highest in hierarchy. The largest part of the people were interested in the research topic and consented to invest their time for an interview.

For Hanover 14 interviews were conducted with representatives of the main shareholders, actors from the sponsoring society and personnel from the climate protection agency. Eleven interviews, including a two-person interview, were conducted with a selection of members and personnel of the energy region association in Nuremberg. Due to non-availability of most of the selected interviewees during the field visit, most of the interviews for Nuremberg were conducted via telephone. Only three interviewees were met in person. For the third case, nine interviews were conducted with a small selection of members and personnel of the Munich’s alliance for climate protection. Particularly, heads of panels, organiser and coordinator were interviewed. Of the heads of panels only one representative of each of the four panels was selected according to

⁶For regional partnership material see appendix A.

high activity and broad knowledge. Thus, according to the researcher the interviewees present the main actors of the regional partnerships as well as smaller actors and actors with different backgrounds and involvements (see appendix A).

The semi-structured interviews last 30 to 60 minutes. The open questions are based on the problem description, theoretical framework and analytical model. Two lists of questions were used (see appendix B). One questionnaire particularly aims to understand the issues included, actors and their relations, the role of knowledge, context and the process of change which might have been induced by establishing the partnership. This questionnaire was used for interviewing the actors within regional partnerships. The other questionnaire also shed a light on the reasons for establishing the regional partnership, geographical focus, issues and actors included, leadership, structure of the regional partnership, resources, authority, socio-political context, evaluation and success. These questions are mainly aimed at the organisers and managers of the regional partnership. In the course of the interviews, questions were frequently adapted according to situation and interviewee. All interviews were recorded and subsequently transcribed. For the analysis the data is ordered and labelled according to the pre-defined elements of the analytical model in section 2.4.

The quality of interviews differs to a certain extent. The telephone interviews conducted with the participants in Nuremberg do not have the same quality as the interviews in person because they suffer from the lack of personal contact and trust. Hence, they yield less informative content than wished. Moreover, the reliance on only one selected head and no additional market actors for Munich's regional partnership may influence the analysis. On the other hand, the interviewees selected represent the most informed actors. Moreover, for Hanover more actors than in the other regions were interviewed. By being aware of these flaws in data collection a bias will be avoided.

For conducting a network analysis, the network analysis approach 'Net-map' is used as an orientation for questions on relations. Net-map is a comparatively straightforward tool for network analysis but sufficient to improve the understanding of interaction in the partnership. Moreover, it increases the attainability of the analysis especially regarding constraints of time. The approach helps to determine which actors are involved in a network, the intensity of links, what influences they have and what goals they aim for (Schiffer, 2007). In order to draw the networks, the network analysis software 'Pajek' (1.27) developed by Vladimir Batagelj and Andrej Mrvar is employed.

According to the 'Net-map' method maps are drawn during the interviews. For this research, maps are drawn in the aftermath due to the telephone interviews used and lack of time in interview sessions. This is not assumed to negatively influence the results. During interviews map drawing has always been on the mind. Moreover, a certain distance between the data selected during the interviews and the drawing of maps may enhance the researcher's own impression of the networks. Finally, the maps are only used as a heuristic device to visualise the relations of actors.

4. Background to the cases

This chapter will present the selected regions and explain the developments that led to the foundation of the regional partnership⁷.

Hanover In 2001, Hanover region came into being through a merger of the Hanover District and the District Free City of Hanover. Already earlier local recreation, regional promotion of economic development, suburban traffic and land use planning were subject to cooperation between Hanover city and the district or 'communal federation' Hanover (Gebietskörperschaft). Amongst others, Hanover region is the responsible body for public transport, waste management, environment and planning. Yet, Hanover city keeps its privileges of a district free city. Similarly, the 20 communities in the region decide independently on local policy strategies (Ecolog gGmbH, 2009).

Both Hanover city and Hanover district have been active in climate protection since 20 years. During the preparations of the EXPO 2000, the 'Klimaschutzprogramm EXPO-Region Hannover', a climate protection programme for the EXPO region Hanover, was initiated. Its main results were model projects in solar power and energetic building modernisation, and experimentation with social marketing campaigns. Due to the KLEX programme being a success, in 2001 the Climate protection agency region Hanover⁸ ('Klimaschutzagentur Region Hannover gGmbH') was founded. It is a nonprofit company with limited liability. The main shareholders of the agency are the City of Hanover and Hanover region, municipal utility, public transport Hanover, companies from the (renewable) energy sector and some organisations (Potthoff, 2009). In addition, since 2003 the initiative 'climate protection region Hanover' aims to combine the strengths of all actors in the region in order to play a leading role in climate protection and sustainable economic development.

Nuremberg Nuremberg together with the cities Fürth, Erlangen, Ansbach and Schwabach forms an agglomeration centre in 'Franken', a region in Northern Bavaria. The metropolitan area has a long tradition of energy technology production. Due to structural changes in the 1990s lots of employees of energy technology producing companies were made redundant. Yet, a study by the Fraunhofer society of the year 2000 points out special competences of Nuremberg region in the energy field.

To strengthen these regional economic competences and to foster business development, in 2001 the 'ENERGIEregion Nürnberg e.V.' (energy region Nuremberg association) is founded by the department for economy of Nuremberg city. Members to the association are amongst others, the representatives from the economic and environmental departments of the major cities of the region, engineering businesses in energy technology, automation and energy efficient building, chambers

⁷The information is mostly based on the interviews and the homepages of the three regional partnerships.

⁸In the following called climate protection agency.

and universities. Since 2007, the subsidiary company - 'ENERGIEregion GmbH' (energy region corporation) - takes over the operational tasks of the ENERGIEregion association. It concentrates on business initiatives, innovation and development of research projects, which was formerly the focus of an energy technological centre (etz) established in 2001. The services of the association are directed at the metropolitan area Nuremberg, officially recognised in 2005.

Munich Munich city is the capital of the 'land' Bavaria. Due to its economic power and dense population, the city is an important centre of the region (Landeshauptstadt München, 2009, 15). A joint planning system guarantees a high quality of environment and leisure time through regional land use planning (Regionaler Planungsverband München, 2005).

By joining the Climate Alliance⁹ in 1991, Munich city committed to reducing CO₂ by 50% until 2010. Despite of the development and use of concepts on energy saving, emission reduction and local energy provision between 1992 and 1999, already in the middle of the 1990s it became clear that a 50% reduction of CO₂ emissions by 2010, based on emissions from the year 1987, would not be feasible. In 2008 an integrated strategic concept (Integriertes Handlungskonzept München) is allowed and first measures are to be implemented between 2010 and 2012 (Landeshauptstadt München, 2008).

In the preparation of the strategic concept, it was recognised that the city administration and its subsidiary companies themselves are able to half the emissions until 2030 but that they have no influence on the decisions of the private sector which causes a high share of emissions. Therefore, in November 2007 the alliance 'Munich for climate protection' (Bündnis München für Klimaschutz) is launched to activate and motivate the private sector. The first stage of the alliance ended in March 2010 but the alliance will be continued in the coming years. The main participants are Munich city, four building societies, the chamber of commerce, Munich public transport, the local energy provider and an applied energy research institute.

In the following three chapters the cases will be analysed according to the elements identified in section 2.4: the package deal, actors, relationships, capacities and the context. The case studies start with an introduction to the objectives and tasks of the respective regional partnership. Then first actors and ways of involvement are presented before the section on package deals also explains the participation of actors in certain issues. Relations are examined in additional sections on networks and 'actors and relations', not within the capacities. Accountability capacity is found not to play an important role in all three cases and is thus left out from the section on capacities.

⁹The climate alliance (Klimabündnis e.V.) is an association and network of European local authorities founded in 1990 which is committed to the protection of the world's climate. Its aim is to halve per capita emissions by 2030 at the latest (from 1990 baseline) (Climate Alliance, 2009)

5. Hanover climate protection region

5.1. Introduction

The regional partnership is identified and characterised by the formal inclusion of actors in the climate protection agency of the region Hanover¹⁰.

The regional partnership Hanover aims to promote climate protection on regional and local level. The main task of the climate protection agency is to do public relations work for climate protection technologies and measures. Public relations include marketing campaigns, information events and press relations. Secondly, in order to promote climate protection the agency offers support for climate protection activities to the 20 communities. Thirdly, it coordinates all relevant actors in the climate protection field and establishes a network. Formal and informal contacts are conveyed and relations are established by different meetings of the members of the agency. Finally, a service centre for actors and interested citizens is build up and educative activities are offered. The aim of these measures is to trigger investments. Politically, the promotion of climate protection in Hanover region should especially link environmental objectives with economic development.

5.2. The actors

The regional partnership involves many different actors from different spheres of the society. Market actors form a large group of actors. A second group is formed by local and regional authority as well as actors that are formally related to the authorities, for example the public transport company. Third, the civil society is represented by (environmental) NGOs and associations. Actors are either shareholders of the climate protection agency or members of the sponsoring society (Förderverein) which is also a shareholder of the agency. A third form of formal involvement is assistance through the advisory council. The climate protection agency is a subsidiary company of both Hanover region and Hanover city. The other shares are held by the local and regional energy providers, wind and solar power companies, public transport company, sponsoring society, engineering and planning offices. Table 5.1 gives an overview of the shareholders and the members of the sponsoring society. Hanover climate protection agency has about 60 members.

The sponsoring society was founded due to the initiative of the chairman of the environment centre association. It guarantees participation by NGOs and associations since membership is more open. Yet, the bigger part of members is businesses. The number of members has constantly risen since 2001 to currently 54 members. Some companies have also given up membership. One reason is the rare case of insolvency, the second reason is that often companies that are not regionally based but a subsidiary of a national company did not see the long-term interest but expected volume of sales in the short term.

¹⁰The data sources that have been used for the case analysis of Hanover regional partnership can be found in appendix A.

Table 5.1.: Actor structure of Hanover's regional partnership

Shareholders	share	Members of the sponsoring society
Hanover city	25.4%	environmental NGOs
Hanover region	25.4%	consultancies
sponsoring society	15.8%	communication agencies
Hanover utility	9.8%	event agencies
e.on Avavon	9.8%	engineering offices
Windwärts Energie GmbH	2.1%	municipal utilities
üstra	1.9%	craft guilds
AS Solar GmbH	1.9%	craftmen's businesses
ecoJoule	1.9%	wind power companies
GMW engineering office	1.9%	energy companies
target GmbH	1.9%	building societies
Solar engineering	1.9%	associations
		research & universities

5.3. The package deal

The issues in the package deal of the climate protection agency are chosen on the basis of their potential use and success as well as on actual market demand or potential future demand. Economic relevance is of high importance. The package deal can be redefined in the economic plan of the climate protection agency for the year. The economic plan has to be approved by the city and the region. The other shareholders have some influence on the inclusion of further issues according to the weight of their shares. Thus, decision-making is rather hierarchical.

The focus of the package deal lies on renewable energies, construction, energy saving, energy efficiency in businesses and private households, education and mobility. At first the climate protection agency focused on solar power and energy efficient buildings. Those two issues promised and still promise most success and highest usability according to the managing director of the climate protection agency. They are also the issues which attract most interest in the actor forums with about 30 to 40 participants.

Today more diverse issues are included in the package deal. Actor forums on mobility, chp, energy efficiency in businesses, wind energy, energy savings, education, and commissioners for energy and environment have less participants than solar power and construction. The number of participants probably reflects the importance of the topics for the market. In the wind power forum one reason for relatively few participants is assumedly competition between companies. Activities on pellet heating and sport's facilities are not included in the table since they are rather small issues and the number of actors is limited. Geothermal energy is not yet an issue in the regional partnership because, one, risks are perceived high and acceptance is low and, two, there is no member of the partnership which is active in the geothermal industry. However, Hanover region and the business development company are likely to push this issue in the near future.

Table 5.2 shows which actors are involved in which issues. The involvement of actors is deduced from a protocol of actual participants in the actor forums or groups between February and April 2010. Since the participation list is based on a single spot check, certain actors might not be represented but have received an invitation. Nevertheless, the table gives a good overview of which kind of actors are involved in which issues.

Actors are to a large extent attached a descriptive name in order to give a general picture.

Table 5.2.: Issues and actors in Hanover's regional partnership

Issue	Number	Actors
solar power	~ 30	4 solar power companies, 1 energy systems producer, energy service provider, 2 communities, 5 towns, Hanover city, Hanover region, business development company, 2 craft businesses, 2 engineering offices, research institute, event services company, guild, utility, environmental services company, 3 technical services company, environmental NGO, consumer association
buildings	~ 40	chamber of crafts, proKlima utility fund, several architect offices, Hanover city, consulting company, Hanover utility, community, town, engineering offices
mobility	~ 10	energy efficiency association, Hanover utility, public transport company, small automotive company, Hanover region, proKlima utility fund, business development company, carsharing company, power company, ministry of transport, Hanover city
chp	~ 10	Hanover utility, Hanover region, housing association, power company, 2 engineering office, proKlima utility fund, 2 building societies, chp company
energy efficiency in businesses	~ 10	chamber of commerce, chamber of crafts, proKlima utility fund, business development company, Hanover city, environmental services company, 2 engineering offices, power company
wind energy	>10	3 wind power companies, power company, municipal environmental campaign association, wind energy association, Hanover region
energy saving	~ 20	waste disposal company, charity, tenant's association, energy saving consultancy, power company, protestant church association, 2 communities, chamber of crafts, school, environment communication company, Hanover city, proKlima utility fund, environment centre, 3 environmental NGOs
education	~ 20	power company, environmental communication company, environmental information centre, 5 schools, 2 towns, 2 environmental NGOs, environment centre, association of engineers
commissioners for energy and environment	< 10	church services, Hanover region, climate protection agency, power company, proKlima utility fund, 8 towns

The involvement of actors in the different issues follows their main roles in the society and organisational interest. In the actor forums directly related to renewable technologies, that is solar power, wind power, buildings and mobility, the most common actors are relevant businesses. Other common participants are actors related to engineering and craft. In energy efficiency in businesses, representatives of the market sector dominate whereas in the issue energy saving lots of associations, environmental NGOs and municipal actors are involved. Hanover region participates in solar power, mobility and chp. Hanover city and the proKlima utility are very present, participating in five of eight forums. The different NGOs involved participate mainly in the forums on solar power, wind power, energy saving and schools according to their focus. In the working group of commissioners mainly actors of the different communities take part since ideas on communal climate protection action programmes are exchanged.

Package deal implementation

The issues of the package deal are mostly implemented through public relation measures, information services for citizens and advice for communities on communal climate protection action programmes. Public relations consist of marketing campaigns, event organisation with information stands, information provision on the issues at hand and funding possibilities. Especially in solar power and wind power there is a long tradition of public relation measures. The conveyed information and advice is given neutrally in terms of brands or service providers. However, businesses and organisation may present themselves and their products on certain events. By marketing alternative technologies and energy efficiency measures in buildings, the agency is also successful in generating orders especially for SMEs and crafts.

Among the campaigns, some have a higher status. For example, the 'energy saving' campaign has a variety of offers ranging from advice for low-income households, energy saving during fast, to energy saving parties. The campaign 'Gut beraten starten', geared towards giving house owners advice on modernisation, is the most successful campaign. It offers information online, at information desks present at events in the whole region and advice through neutral, qualified energy consultants. Additional funding is generated from economic partners who support the campaign because they believe in a stimulation of the market.

A survey of 185 households to evaluate the campaign published in March 2010 by the German 'Institute for Social-Ecological Research (ISOE)' confirmed the high quality of consultation, acceptance and trigger for energy efficient modernisation of houses. Modernisation of houses is also a major focus of Hanover city's climate protection strategy. Therefore, Hanover city has a leading role in standard setting, pilot projects and high political motivation for energy efficient houses.

The campaigns on energy efficiency in businesses and modernisation are also part of the communal climate protection programme of the climate protection agency which helps communities to develop measures or strategies relating to climate protection together with all interested actors of a community.

5.4. Hanover network

Diagram 5.4 shows the interaction between different actors that are formally related to the climate protection agency¹¹. The shown network is only a representation of the

¹¹Explanation for the abbreviations used for the actors can be found in Appendix C

actors with a formal relation to the agency. The actors selected, as explained in the data section, share or contradict in certain attributes which is a valid focus to define a network's boundaries (Rowley, 1997). However, the selection of the boundary and also constraints in time thus allow to show only certain relations that might be representative for others. Especially members of the sponsoring society and their relations to the other actors are thereby assigned a secondary role. It can be concluded that the chosen network boundary is likely to represent the main organisations which interact with each other to achieve a (common) purpose (Provan et al., 2007, 482). By having set the boundary in this manner, most of the relations constitute more than a link by formal membership.

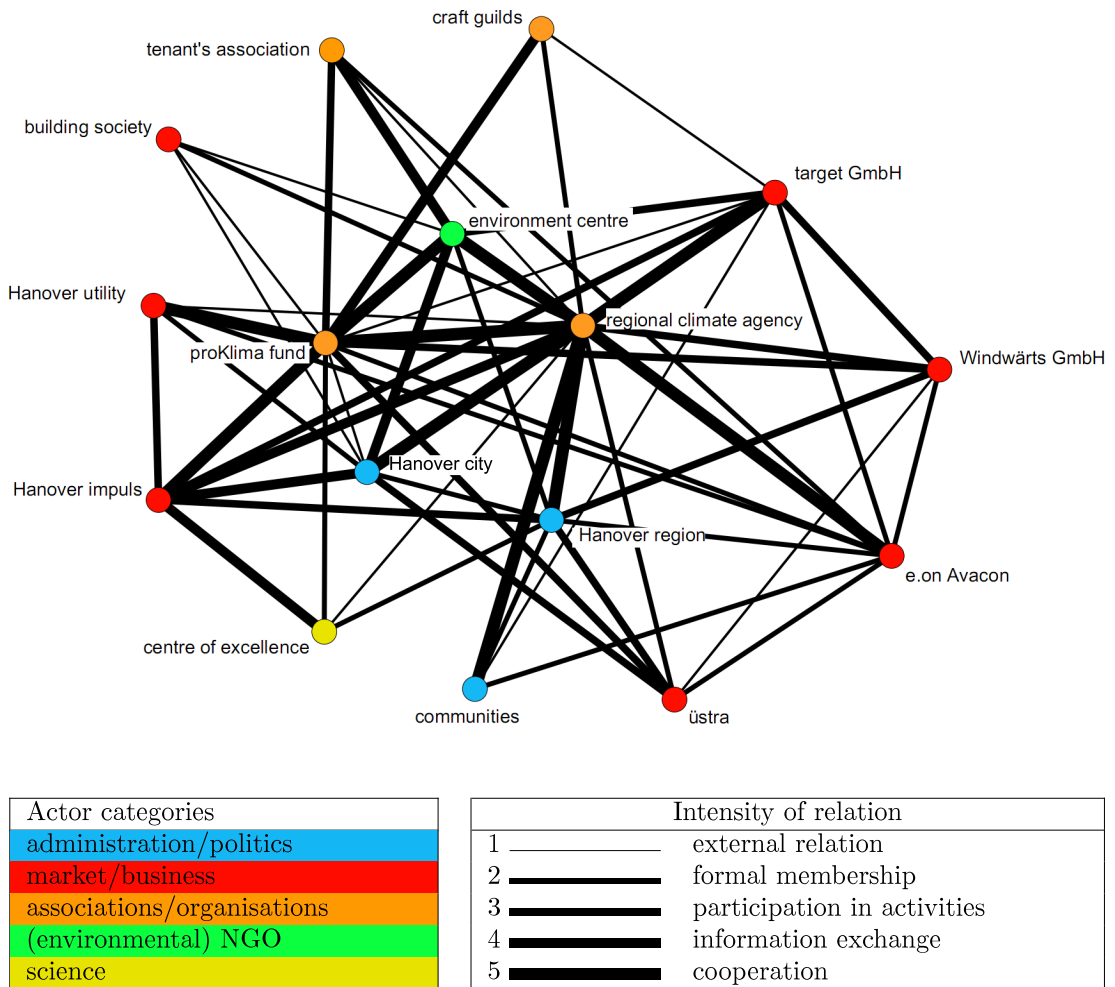


Figure 5.1.: Hanover network

The network presents the researcher's heuristic impression of the existing relations. In the network (see figure 5.4) different intensities of relations can be identified. The relations identified are an interpretation of the data and relate to the regional partnership as framed by membership in the climate protection agency and the 'tasks' necessary for a transition to sustainable energy society.

External relation denotes a relationship that is not due to the regional partnership and primarily focuses on activities external to the climate protection agency. Participation in activities translates to participation in actor forums. Information exchange denotes an intermediate form between actor forums and actual cooperation. It is an

interaction in smaller groups which mainly consists of information exchange as for example between the environment centre and Hanover city, and hannoverimpuls GmbH and proKlima utility fund. Cooperation can be the organisation of projects or events as well as orders and major financial flows if related to the task of the climate protection agency.

5.5. Relations and actors

Several formal ways of relating to others are identified. Whereas information meetings, which serve to convey information on new possible fields of activity, are open to members of the climate protection agency as well as any interested actor, three further institutions are closed for non-members. The actor forums are organised twice a year in spring and autumn. Moreover, project forums are used to prepare specific promotion events such as the yearly solar and wind party. Finally, talks on recent topics called fire-side chats (Kamingespräche) invite all actors formally linked to the climate protection agency plus regional representatives from politics and economy. The meetings, opened with introductory talks and leading over to discussions, take place about once per year. They are conducive for establishing informal and personal contacts between members. All shareholders meet twice, towards the end of the year for decisions on the economic plan and again in May or June to close the year. Due to the membership through the advisory council and the region or city, hannoverimpuls and the centre of excellence only receive invitations to some of the meetings. Yet, hannoverimpuls participates in certain actor forums and cooperates on an energy efficiency award.

Only part of the relations between the actors of the regional partnership have been established due to the formal networking activities and coordination of the climate protection agency. Subsidiaries of region and city have already had a close relation to similarly affiliated actors, for instance, Hanover public transport company and hannoverimpuls. Furthermore, some other companies and NGOs, such as the environment centre and target GmbH, mostly rely on an established network. Target GmbH offers services related to qualifications, communication, networking and project development, such that most of its relations to other actors are orders.

Hanover city, similarly to Hanover region, has few thicker links to the actors of the network. This is due to the order given to the agency to organise public relations relating to climate protection and the market. Between the climate protection agency and the related actors the most common relation are cooperation or information exchange. For instance, in the preparation of the climate protection action programmes, the climate protection agency and target GmbH cooperate with Hanover's communities. All actor forums and project groups facilitate information exchange and project implementation.

Businesses in technology and engineering mainly contribute financially but also participate in actor forums and benefit from presentations on events and the market stimulation. The wind power company Windwärts initially proposed that small companies could also become shareholders to the agency. With its membership in the climate protection agency Windwärts aims to ideally support climate protection, being one of the actors that does not face a climate change vs. economic gains conflict. It participates in three actor forums and cooperates on the wind power party. Recently, it is however less active. The economic objectives of the participating wind power companies lead to competition which also obstructs further cooperation apart from marketing. Except for its dependence on the region's allocation of new wind power locations, the main

sales volume is not generated in Hanover region.

NGOs, associations and consultancies often help implement the campaigns either on the basis of an order or through mere cooperation by establishing contacts. For example, the environment centre takes orders from the climate protection agency to organise the solar party and the sports facilities projects.

From a financial view, the shareholders build another group of actors¹². Apart from the shareholders, the utility fund proKlima, a subsidiary company of the utility, finances activities that relate to the operating area of the utility that is constituted by Hanover city and five other communities. It focuses on energy efficiency measures that are not yet commercial. In the partnership, its cooperations with the other actors work mainly via the climate protection agency. The agency is a major mean, apart from the own public relations department, to raise interest in solar thermal systems, for instance. The fund supports the issues, modernisation, new passive houses, solar installations, school programmes and CHP, since they are closely related to its own focus and in its operating area. Moreover, it supports campaigns on pellet heating, modernising sports facilities, saving energy and energy efficiency in businesses. Externally to the partnership strong relations exist to craft businesses, engineering offices and actors in the building sector.

The 'Spar- und Bauverein' is a representative of the building societies. It has a close external relation to the utility fund as well as Hanover city. This emphasises the strong focus of Hanover city on energy efficiency in buildings. One cooperation with Hanover city and the utility fund is the EU project Concerto on building modernisation. The actor forums of the climate protection agency helped the building society to establish contacts to the industry and engineering bureaus and facilitate improvements of technologies.

In the regional partnership of Hanover different views coexist on the network of the partnership. In general there is consent on the most relevant actors. However, depending on the actor interviewed, different actors are considered crucial and central. There is a slight competition between Hanover city and Hanover region noticeable. With its subsidiary Hanover utility and the utility fund, Hanover city is certainly a crucial actor. The region has a more broad view on the relevant actors, taking into account wider regional and EU levels of governance. From a task division perspective, 'hannoverimpuls GmbH' for business development and the centre of excellence for research and development can be considered further important actors but in the work of the climate protection agency they seem to play a minor role. They complement the public relation function of the climate protection agency and the funding function of the utility fund proKlima. In addition, the region and the communities provide legal frameworks and the climate protection economy develops, produces and plans technologies and processes. Hanover city, Hanover region, utility fund proKlima, the business development company, the centre of excellence and the climate protection agency also represent the steering group of the climate protection region Hanover.

As indicated in the task description of the actors they often have different objectives. For example, hannoverimpuls focuses on entrepreneurs. It aims to push the settlement of energy technology producing companies and to create employment opportunities. The climate protection agency promotes entrepreneurs indirectly through marketing certain technologies but many of their activities are oriented towards private households. Hannoverimpuls also cooperates closely with the centre of excellence because

¹²In the network diagram, not all shareholders have been included. Those which are included have a dashed border

both organisations are oriented towards future technologies.

The network diagram identifies the climate protection agency as a central actor, being the coordinator and organiser of the regional partnership. The second crucial actor is the utility fund proKlima, followed by Hanover region, e.on Avacon, Hanover city, hannoverimpuls, environment centre and target. E.on Avacon, as the regional energy provider, is a relevant actor because it finances many regional public relation measures and is active in many actor forums.

5.6. Capacities

In terms of capacities, especially relations, resources and the institutional set-up have a big influence on the shape of the regional partnership of Hanover.

Institution The chosen form of a public-private partnership clearly regulates the obligations and rights of members. The different forms of membership, as shareholder, sponsoring society member or member of the advisory council give different opportunities to participate in the regional partnership. For example, the regional energy provider e.on Avacon is accepted as a shareholder under special conditions. Assumedly, this also enhances the diversity of members. As a subsidiary company of both Hanover city and Hanover region, the climate protection agency gains a central position in the climate protection field.

Organisation The allocation of shares guarantees that Hanover region and Hanover city have the major decision-making power in the shareholder meeting. It is thus avoided that one of the two energy providers has a major influence on decisions. The members of the sponsoring society together have a reasonably high influence, however single members have only indirect influence. Advisory council members have a consultative status. Although the decision-making is rather hierarchical, the mission of the climate protection agency appears to be many-sided and appeals to actors from all spheres of society because of or despite of its focus on market demand.

A general evaluation of the climate protection agency's work has so far not been institutionalised for analysing the success of the campaigns and projects of the climate protection agency. High costs, time and effort are the main reason for not conducting regular evaluations. Nevertheless, partial evaluations of the biggest campaigns, such as 'Gut beraten starten', are being conducted more or less regularly. Findings are then often transferred to the other campaigns due to the campaigning elements being often similar. Apart from the modernisation campaign, the acceptance of the solar party has been analysed in 2004 and a very recent evaluation of the campaign on energy efficiency in businesses shows that at least small investments are triggered.

Knowledge Knowledge exchange in terms of learning does not play a role between the actors. It is mostly information in terms of actual developments, new projects and ideas that is exchanged. Some of the actors, such as the utility fund proKlima in its cooperation with Hanover city on modernisation, contribute with their knowledge to the success of certain projects. On the other hand, proKlima derives a good part of its knowledge from external institutions, especially the passive house institute in Darmstadt. Moreover, in the communal climate protection programme, the climate protection agency, supported by target GmbH and the

environment centre, facilitates learning about communal climate protection strategies.

Scientific studies have often influenced the shape and direction of the climate protection agency and its members. For example campaigning and certain issues selected for the package deal have been influenced by this advice. Moreover, a recent study on governance is very likely to influence future decisions on a restructuring of the governance system of the climate protection region Hanover.

Leadership In Hanover, especially the green politician Hans Mönninghoff takes on a leadership role for Hanover city but also for Hanover as a climate protection region. Already since 1989 he has been head of the department of environment, in 1997 he became the deputy of Hanover mayor and in 2005 he also became head of economy of the city of Hanover. He has co-founded the utility fund proKlima and he has also supported the foundation of the climate protection agency region Hanover. With his double role in environment and economy he succeeds at fostering both environment and economy to an equal extent. Secondly, Udo Sahling, the managing director of the climate protection agency Hanover region, plays an important role. He has acquired a lot of knowledge in his earlier work in the department of environment of the regional authority that existed before 2001. Furthermore, he co-designed, prepared and implemented the KLEX programme.

Resources The climate protection agency has a considerable amount of finances at its disposal, even though personnel costs need also to be covered by it. The climate protection agency has its own staff apart from the civil servants working in the climate protection unit and the department of environment in Hanover region administration. It employs in total 23 persons, however not all on a full-time basis. These are mainly responsible for the coordination and organisation of projects, campaigns and advisors. Moreover, seven students are working for the service and information section. In addition, all shareholders and sponsors of the climate protection agency in some way and to some extent use certain personnel for tasks in the climate protection agency.

The total budget of the climate protection agency has been increasing since 2006 and its income amounts to 2.1 million Euros for the year 2009. Until 2008 Hanover region contributed the highest share of the total budget. In 2009 the share of economic partners is the highest. Further financial means come from Hanover city, e.on Avacon and Hanover utility. Moreover, some means stem from the federal climate protection initiative and communal means. In addition, a part of the utility fund's yearly budget of about 5 million Euro¹³ is used for the objectives of the climate protection agency.

5.7. Context and role of the regional partnership

On the EU level, Hanover city is an active member of climate protecting city groups, such as the 'climate alliance' from Frankfurt, the covenant of mayors and ICLEI. Both Hanover city and Hanover region have taken up the CO₂ emission targets of these groups. Exchange of ideas and practices with other cities in Germany or Europe is

¹³About three million are contributed by the utility composed of a climate cent deducted from gas payments of the utility's clients and earnings. The city of Hanover and the five communities plus further gains constitute the rest.

very common and proactive. The participation in the EU project 'Concerto - Act2' also enhanced Hanover city's leading role in energy efficient modernisation and that of the business participant's.

Nationally, the climate protection initiative of the federal environment ministry is important for the climate protection action programmes implemented in Hanover's communities. The programmes are funded by up to 70% of the necessary financial means. However, due to a high demand and hence exhausted budget, the funding for the year 2010 has been frozen in May (BMU, 2009). Thus, about 4 of 20 communities in Hanover region can only expect to start their measures in June 2011 and 3 in 2012. Consequently, the spending freeze will retard the climate protection activities in communities since investments without funding are too expensive for the communities. In addition, some guilds and crafts may suffer a little from the cancellation of orders.

Hanover city and Hanover region were very influential for the initiation of the regional partnership and still are the major decision powers. The regional partnership is interdependent with these regional and local government actors. Actors on higher levels have strategic influence. The national level steers by granting financial means.

The climate protection agency is not the only climate protection initiative of Hanover region. Both Hanover city and Hanover region strive for 40% reduction in CO₂ emissions. In 2007, first Hanover city developed its climate protection programme 'Klima-Allianz Hannover 2020' (climate alliance Hanover 2020). It involves all major city stakeholders - businesses from the energy-intensive industry, the owners of the biggest office buildings (banks and assurances), representatives from the building industry and associations such as churches, parties and environmental and consumer organisations to think of concrete measures. Although the programme for 2020 has been passed in June 2008, the discussions rounds are now continued in the form of three sub-alliances which focus on energy-efficiency, energy-efficient buildings and disseminating the ideas on climate protection. At least half of the participants is also formally related to the climate protection agency or more indirectly to its campaigns. The climate protection agency itself is also member to the alliance working in the group on dissemination and buildings. Hanover city concentrates on modernisation of buildings and new buildings with passive house style, efficient energy use, information and motivation, and energy production with the help of chp and renewable energies.

The climate protection framework of Hanover region was developed in 2008 with support of the climate protection agency. In working groups, specific measures feasible for the regional administration itself and some concrete steps for its subsidiary companies, such as the public transport company üstra and hospitals of the Hanover region have been developed. The general focus of Hanover region is similar to that of the city with measures relating to energy efficiency, information and modernisation of buildings. On the other hand it takes a broader and a little more vague approach which includes mobility and land use planning. The foci are probably also due to the task definition of the city and the region. The region has therein different responsibilities and plays a bigger role in decisions on implementing renewable energies such as wind power and geothermal energy.

In addition to the agency a climate protection region was established in 2003. It involves many actors from the city alliance and the climate protection agency. The notion of a competition between Hanover city and Hanover region, as well as unclear action under the frame of the climate protection, makes believe that the climate protection region is more a virtual network that appears as the web platform of the climate protection agency's network. However, the idea of Hanover region to agree on a climate

protection pact which sums up all activities and measures that are taken and demands cooperation on a common strategy of all relevant actors might transform the climate protection to a real regional initiative.

The climate protection agency very well supplements the policies and strategies of Hanover region and Hanover city. To some extent its tasks have been transferred from the city or region to the agency. The regional partnership does not explicitly take up the CO₂ emission reduction targets of the city and the region, it only strives for general climate protection. It is a marketing actor and contractor equally for Hanover city and Hanover region. Thus, it has a certain integration function. Integration is also facilitated by the foundation of the climate protection region because it starts to summarise all climate protection activities so that the general achievements are emphasised.

5.8. Reflection

The climate protection agency supports the transition idea and encourages to believe in the transition to renewable energy. It makes an effort to facilitate market feasible climate protection technologies and to change thinking and behaviour of citizens. Nevertheless, there remains a small divide between city and region activities. Actors in the climate protection field cooperate in many different groups. While there exist steering mechanisms for Hanover climate protection region, a convincing overall coordination seems to be missing but might be implemented by the planned pact.

The strengths of the climate protection agency lies in particular in public relations. It has a variety of instruments and different approaches at its disposal and can rely on the support of its members. By facilitating the development of climate protection programmes the transition thought may be spread to the communities of Hanover region. The network of the climate protection agency which consists to some extent of newly emerged and on the other hand of consolidated relations is another crucial factor of an emerging climate protection region. Furthermore, through the integration of businesses, the cooperation with the business development company and a strong focus on promoting new technologies to reduce CO₂ emissions and protect the climate, economic development is successfully linked to environmental objectives. The climate protection agency thus makes a contribution to solving the problem of a transition to sustainable energy society by rising awareness and stimulating the economy.

6. Nuremberg energy region association

6.1. Introduction

The regional partnership is identified and characterised by formal membership in the 'ENERGIEregion Nürnberg e.V.' (energy region association Nuremberg)¹⁴. The main objective of the association is to strengthen the regional competences in the fields of energy and environment.

It aims to accomplish this objective by boosting the energy sector of the region and the competitiveness of its members such that the metropolitan area Nuremberg becomes an internationally recognised site for energy technology, business and research. Simultaneously, employment opportunities are to be secured and established. Finally, a structural change towards sustainable economic activities, climate protection and conservation of resources is striven for. The focus is primarily on energy. Environmental and climate protection is only indirectly addressed.

The association is a platform that serves communication and coordination purposes among members. Moreover, it implements research and development projects, helps SMEs to orientate on the market and organises the public relations of the metropolitan region. The energy region corporation coordinates, proposes and implements research projects and offers services and consultancy on energy efficiency to craft businesses, industry and communities.

6.2. The actors

The diversity of the participating actors is quite high, however, certain actors such as (environmental) NGOs and smaller companies are excluded by high membership fees and the strong focus on business development, and research and development. Although there are certainly many active environmental NGOs in the metropolitan area Nuremberg and the agglomeration of cities, for example an alliance on energy transition and the 'Bund Naturschutz', at no point the inclusion of NGOs was discussed. Most members of the energy region Nuremberg association are either municipal or market actors. Representatives from both economic and environmental departments of the biggest towns participate in the association. Market actors consist of energy technology producing companies, engineering offices and consultancies. Furthermore, some scientific institutes are members, too. In addition to normal membership status, actors can also be a member of the steering group or the board of management. The association has about 70 members.

However, the energy region association is not the only network or organisation which is important for understanding the actor structure of the fields climate protection and sustainable energy in Nuremberg region. Its operational unit, the energy region corporation is active in consultancy and research project coordination. It coordinates the

¹⁴The data sources that have been used for the case analysis of Nuremberg regional partnership can be found in appendix A.

network of energy advisers of ‘Mittelfranken’¹⁵ which provides advice to end customers on single or two family houses. Furthermore, the corporation also closely interacts with the energy agency ‘Oberfranken’. They give advice on energy questions to communities, businesses and citizens. Apart from this energy agency, there is also the energy agency ‘Mittelfranken’ which was founded by the utilities and energy providers of ‘Mittelfranken’. It has similar task as the other energy agency. Moreover, it is linked with the solar power information centre solid in Fürth.

Further the foundation urban ecology (Stiftung Stadtökologie) is a cooperation partners and the network building and energy (Netzwerk Bau und Energie) is closely affiliated to the association. The former have developed a focus on energy efficiency in multi-family houses, the latter focus on buildings and energy, especially on housing stock and construction.

An important network for alternative energies, is the network on renewable energies in ‘Westmittelfranken’. It supports the use of these by discussions and projects, the organisation of an information event on energy and the offer of an energy award. The network does not have a legal form nor a budget but is a loose group, that organises meetings with about 30 participants every two to three months. It has no formal relation with the energy region association. The lead of the network is particularly taken over by a member of the German Bundestag.

6.3. The package deal

The ‘package deal’ of Nuremberg’s regional partnership is particularly influenced by the embracement of the definition of regional competences in the department of economy of Nuremberg. The choice of action fields is very narrowly oriented towards a structural and economic change and does not have a broad orientation on many different issues related to sustainable energy. The association focuses on power electronics, automation and electric engineering which are an important element of many energy producing systems, wind turbines and electric mobility. ‘Buildings and energy’ is the fourth element of the package deal. Table 6.1 depicts the four issues and energy efficiency which is implicitly dealt with by the corporation and further actors. In addition to the listed issues, solar power, electric mobility and smart metering play a minor role in the energy region association.

The involvement of actors is deduced from information on the participation in working groups received primarily during the interviews. Energy and building participants are based both on the working groups as well as on the network building and energy because actors are often overlap. Participants are described in a general way because detailed information on actual participation is scarce.

¹⁵Mittelfranken, Westmittelfranken and Oberfranken are different areas of the region Franconia.

Table 6.1.: Issues and actors in Nuremberg’s regional partnership

Issue	Number	Actors
building & energy	~ 10	Erlangen city, Nuremberg city, foundation urban ecology, chamber of crafts, EAM, solid, regional government, municipal building society, further towns
energy efficiency/ consultancy	~ 7	Energieregion GmbH, EAM, OAM, network energy advisors, chamber of commerce, 2 energy agencies of rural districts
electrical techno- logy	~ 10	companies, chamber of commerce
power electronics	~ 10	companies, associations, chamber of commerce
automation	~ 10	companies, chamber of commerce

The issue ‘building and energy’ can be seen as the most important column of the association’s focus on competences. It pools the highest number of actors, has probably the highest number of working groups and is also a common field for events. Typical actors are municipal departments as well as businesses and associations in the field of construction. The issue of energy efficiency/consultancy is dominated by consultative or advising actors. The backgrounds of actors are however different with origins in association, rural district, utilities and representation of businesses. For the three technological working groups it is only known that respective companies of these branches and institutions, such as the cluster on power electronics and the chamber of commerce, participate.

In general, about 20% of the 70 members actively participates in the working groups and events of the energy region association of Nuremberg. Active participation in the association is voluntary. Two reasons for passiveness can be mentioned. Especially during times when sales go well, there is often little interest of companies in the activities of the energy region association. For example, the managing director of a large photo voltaic specialised trade did neither know the reason for their membership nor had he had any contact to the members, although they were still paying membership fees. Another engineering and planning bureau hardly sees its objectives fulfilled, to gain orders, achieve long term market development and participate in research projects. Nevertheless, they are an active member of the association and cooperate on events. Secondly, member companies rarely ask support in networking or developing research projects from the association. This is also due to the problem of competition between companies which allows information exchange but hardly cooperation where each actor contributes his or her knowledge.

Renewable energies are only indirectly a focus of the association through the development of related technologies. The network on renewable energies in ‘Westmittelfranken’, can be considered a representative lobby in the metropolitan area for renewable energies although the activities are centred on the surrounding towns and rural districts of Ansbach. It aims to promote all kinds of renewable energies and involves for example producers of biogas plants and water turbines, a company for solar heat and power systems, politicians and scientific institutes.

Package deal implementation

The issues of the package deal are implemented by developing research projects, organising events or providing consultancy. Under the roof of the etz about 20 research projects were initiated with funding from the Bavarian ministry of Economics. One of them is 'Faktor 10'. It aims to give advice on heat saving and emission reduction of a factor ten and pools together industrial partners, building companies and the software company IngSoft GmbH. However, except for an architect's office - a frequent project partner, and IngSoft, the companies are not members to the energy region Nuremberg association. Some of them are however also frequent project partners for modernisation initiatives in Erlangen. Other projects are for example a modernisation project for the south of Nuremberg, a guideline on energy management for apartment houses published in 2007 supported by the foundation urban ecology and a study on power electronics. Most of the technical projects were developed and finished already some time ago.

Most information events are organised on the issues 'building and energy'. A repeating event are the old building days ('Altbautage') a combination of presentations and a fair and the event 'Greenbuilding'¹⁶ which is organised for the second time in 2010. Participation is possible against a fee. On the topic smart metering a forum to facilitate cooperation was organised in February 2010. According to the association the presentations and discussions already led to first cooperation attempts and it is aimed to further the development of smart metering also with the support of funds. In addition, the energy region corporation provides advice on energy questions to communities, businesses and citizens independent from branches and labels.

6.4. Nuremberg network

Diagram 6.1 shows the interaction between different actors that are formally related to the energy region Nuremberg association or in another way important for understanding the sustainable energy field of the metropolitan area Nuremberg¹⁷. The shown network is only a representation of the actors. The actors selected, as explained in the data section, share or contradict in certain attributes which is a valid focus to define a network's boundaries (Rowley, 1997). However, the selection of the boundary and also constraints in time thus allow to show only certain relations that might be representative for others.

Some actors were grouped together, for example the rural districts of 'Nürnberg Land' and 'Roth' as well as Nurembergs university and applied science university (universities). To stress the difference between active and passive members, representative vertices were included. It can be concluded that the chosen network boundary is likely to represent the main organisations which interact (and partly do not interact) with each other to achieve a (common) purpose (Provan et al., 2007, 482). By having set the boundary in this manner, most of the relations constitute more than a link by formal membership.

The relations identified result from an interpretation of the data and relate to the regional partnership as framed by membership in the energy region Nuremberg association and if relevant the broader affiliated network as well as the 'tasks' necessary for a transition to sustainable energy society.

¹⁶Green building focuses on energy efficiency measures in non-residential buildings.

¹⁷Explication for the abbreviations used for the actors can be found in Appendix C

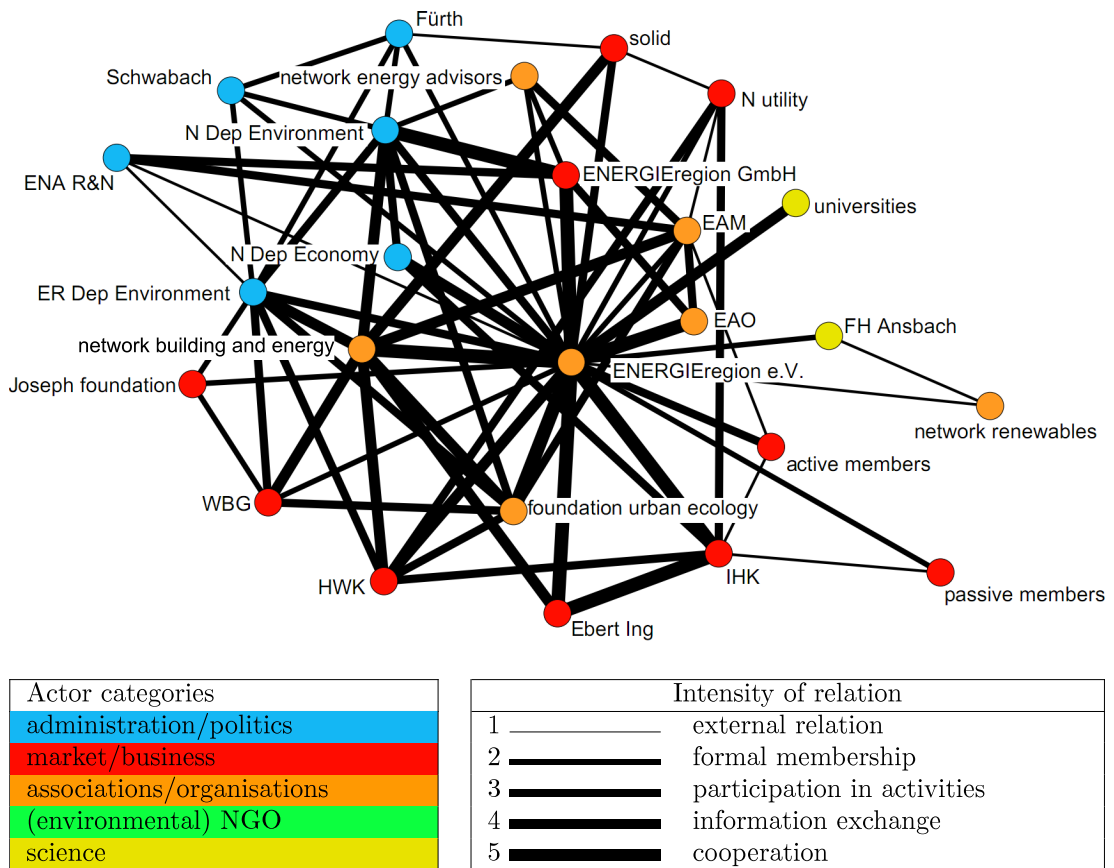


Figure 6.1.: Nuremberg network

In the case of Nuremberg external relation denotes the relations between actors that are not member or directly linked to the energy region association, and relations that exist apart from the association. Participation in activities translates to little more than participation in the member meeting. Information is exchanged in the working groups and cooperation may emerge on research projects, orders or event organisation.

6.5. Relations and actors

Within the energy region association several opportunities for formal contact are offered. All members of the association are invited once a year for a general meeting and decide about finances, membership fee and the management board. Recently the newsletter was changed to offer the opportunity to members to regularly share their experience on projects initiated and or implemented within the energy region Nuremberg association. About every two months members are invited to the meeting 'Stammtisch', where one of the members holds a short presentation and there is room for discussion and informal contacts. Until 2008 this meeting took part every six months. Furthermore, there are different regular and ad hoc working groups.

The energy region association has only to some extent facilitated a closer network of organisations and businesses active in the energy sector. Many relations have existed before and are not due to the associations existence. Especially, the environmental department of Erlangen as an informant on energy topics, the energy agency 'Mittelfranken' and the chamber of commerce as company representatives, have several

external relations. These are however not all shown due to clearness and boundary setting. Furthermore, most actors in the field of energy efficient buildings know each other from the network building and energy which already exists since 1997 as a cooperation between the main actors in the field in Erlangen and Nuremberg.

The departments of environment of Erlangen and Nuremberg often cooperate to advance energy and climate protection related topics in the remaining communities and rural districts. For example they establish higher standards for energy efficient modernisation. However, their relation in the association is based on participation in working groups. Erlangen and Nuremberg are also the cities with the most links. For Nuremberg, the energy region corporation is a valuable source of knowledge and a contractor. It writes expert opinions and the climate protection programme for Nuremberg city. The relation of Nuremberg's department for economy to the energy region association is a bit stronger than that of the environmental department because it is the head of the steering group of the association.

The energy region association has cooperative relations only to its affiliated organisations and frequent cooperation partners, such as the energy agency Oberfranken and the chamber of commerce. Apart from cooperation, participation in activities, formal membership and to a lesser degree information exchange are frequent intensities of relation. For instance, the association is in constant information exchange with the region's major science institutes. In the near future the relations between them and the institution will be more intense. Together with Nuremberg city, the university and applied science university of Nuremberg an energy campus is to be built in Nuremberg with a focus on topics similar to those of the association, namely building and energy, energy efficiency and power electronics.

Although, the diagram supposes that the energy region association is a central actor, it does not appear to be crucial for implementing projects. The association can rather be a place for making new contacts because it attempts to pool the relevant actors of its package deal. The most relevant relations between members are information exchange and participation in activities.

A very important group of actors are the actors participating in the issue building and energy. They regularly exchange information by participating in the network building and energy meetings and/or the three working groups of the energy region association on living, industry buildings and public buildings. The network on building and energy is different from the working groups but it has a similar participant structure and also meets at the association. Information is exchanged and distributed, especially by the leader of the network, Jürgen Seeberger, on a regular basis. Participants meet every quarter of a year. Moreover, information is regularly exchanged via e-mail. The network meetings are often attended by the chamber of crafts, the foundation urban ecology, the departments of environment of Nuremberg, Erlangen, Fürth and Schwabach, the building society WBG, energy agency 'Mittelfranken' and sometimes solid.

More ad hoc working groups exist on the topic 'GreenBuilding', smart grid, urban renewal and the organisation of events. In addition, there are working groups on the issues automation and electric engineering but their structure remained unclear during the interviews and document review. The issue power electronics has been transferred to the european cluster for power electronics (ecpe) in Nuremberg. The more ad hoc working groups are not indicated in the diagram due to their minor importance and often unclear participant structure. An exception is 'Greenbuilding' which is presented by the energy region association and organised in cooperation with Ebert Ingenieure GmbH, Nuremberg city, chamber of commerce and Bavarian innovation clusters.

Recently, a working group was formed to bring together the major organisations and companies active in the field of energy consultancy. The group encompasses the energy agencies 'Mittelfranken' and 'Oberfranken', the energy region corporation and the independent energy advisory offices of the rural districts Nürnberger Land and Roth. The number of actors in this field shows a large (business) interest in energy efficiency related topics. However, the activity of the network of energy advisors has lately decreased.

It might be concluded that due to the large number of energy advice giving institutions there is a lot competition between them. But most of the different advisors have different geographical foci, different competences concerning the topics of consultation and different abilities with regards to personnel and facilities. This was emphasised by almost all interviewees in that field. An important actor in the field of energy consultancy are the utilities of the region which constitute the energy agency 'Mittelfranken'. Especially Nuremberg as the largest utility is involved in many organisations, amongst others the recently decentralised solid information centre on solar power. Moreover, it supports the organisation of the 'old building' days by the chamber of crafts together with the energy region association.

The network of the energy region association suffers from rather little knowledge on the association's existence and willingness to actively cooperate. There is not only a difference in activity but actors in the network diagram also have different orientations. Businesses generally seem to hesitate to establish strong relations. Actors in the issues power electronics, electrical engineering, automation have a more narrow focus, whereas actors in building and energy, the chambers as a political representation of industries and crafts, the administrations and political leaders of the associated towns as well as the universities of the region pursue more broad agendas. Both chambers are for example also active in the network on renewable energies 'Westmittelfranken'.

Although, there is this overlap of members, the relation between the very politically led network on renewable energies and the association energy region Nuremberg is at a maximum an external relation consisting of information exchange on planned activities and their dates as well as knowledge of each others existence. An attempt to cooperate more closely was not successful. The loose network on renewable energies is nevertheless always recognised by interviewees as a driving force for the region around Ansbach.

6.6. Capacities

Particularly, relations, resources, mission, institutional form and leadership influence the shape and action of the energy region association.

Institution Members to the association have the right to participate and decide in the member meetings as well as to participate in all other activities and to make applications. In return, they are obliged to follow the rules and decision of the association, to pay the membership fee as well as to support the objective and tasks of the association. Nevertheless, many members are passive. Passiveness is however a problem all cooperative forms can face if there are no sanctions in place.

Organisation The main elements of the mission of the association are business development and research. Therefore it attempts to pool actors and develop research projects. The steering group consisting of 13 representatives from businesses and politics advises the board of management on task and strategy planning and

coordinates the working groups. The board of management is composed of 14 members from businesses, politics and science. Due to the origin of the partnership idea, the most influential actors in the foundation are the department of economy of Nuremberg city and the chamber of commerce. Furthermore, the businesses and further political actors such as the department of environment which is involved in the board of management and in the working group on building and energy exert some influence. The daily management is carried out by a coordinating office.

So far the effects of the platform energy region Nuremberg association have not been evaluated. Results of pooling activities are only to be communicated more openly by the members in the future. It is not clearly traceable which contacts and cooperations might have their origin in the association. One rare communicated example for successful pooling is IngSoft, a company that develops software to manage energy flows of communities or towns. With ABB Gebäudetechnik AG (facility technology), it found a user of its software on energy utilisation data from buildings in the association. Moreover, by being a member in the association Ingsoft could implement the software development in the research project 'Faktor 10' of the energy region corporation. Assumedly, this is the exception. According to the managing director of the energy agency 'Mittelfranken' and a managing director of Ebert Ingenieure their orders and contacts are to a large extent not due to the existence of the association.

Knowledge Knowledge does not play an important role within the association. Scientific studies have however shaped the mission of the association. Within the association's network, know-how is often kept within single firms even in cooperative research projects. Similarly, the various actors in the issue energy efficiency are only slowly beginning to cooperate by exchanging information on their work. A major role plays information exchange which is also visible in the network relations.

Leadership Economic leadership plays an important role in the orientation of the energy region Nuremberg association. Although all members have equal say in the meeting of members, it is assumed that both the manager of the department of economy of Nuremberg city, Dr. Roland Fleck, and the representative of the department of environment and innovation of the chamber of commerce of 'Mittelfranken', Dr. Robert Schmidt, have had and still have a major say in the discussions of the board of management. Schmidt was one of the founding members of the association and has been active in environment and innovation related topics since 20 years. Third, Dr. Jürgen Seeberger is one of the driving forces in the field of building and energy. He keeps track of the developments and disseminates relevant information to many actors in the field of energy. Further relevant personalities committed to advance energy efficiency are the few managing directors of the active members, mostly businesses.

Resources Financial resources and personnel restrict the potential opportunities for action to some extent. The association receives yearly about 130.000 Euros of the membership fees, normal members pay about 2.500 Euros, actors in the steering group and board of management pay a higher fee. However, without additional third-party funds the association could not cover the costs for the office and the advisors hired for projects. The association is dependent on the interest

in its offers and willingness of companies to pay for these. The energy region corporation works to a high extent with funds from different levels of government. Due to the freeze of the climate protection initiative means, the corporation will probably implement less projects and reorientate itself towards different sources of funding this year.

The office of the association employs three employees plus a managing director, of which most work only part-time. The energy region corporation employs around eight persons. This corresponds to a small personnel team. While the composition of the board of management of the association is stable, the managing director of the office has changed about three times since the start of the association.

6.7. Context and role of the regional partnership

The regional partnership Nuremberg and its actors are especially embedded in the EU and local governance level. Nuremberg is member to the European 'climate alliance' and the covenant of mayors which facilitates proactive exchange of ideas and practices with other cities in Germany or Europe. The CO₂ emission target of Nuremberg and Erlangen is oriented towards the aims of the 'climate alliance' as well as the federal government's objective. The objective is not directly taken up by the regional partnership. Its mission only implies a striving for CO₂ reduction.

Except for applications for research means, the national level does not play an important role for the energy region association. From the local and regional authorities, particularly the department for economy of Nuremberg city, influences the regional partnership. Nuremberg city is also the location of the Bavarian clusters on energy technology and power electronics and of the Bavarian energy forum 'Bayern innovativ'. Generally, Nuremberg and the surrounding districts and towns, with Bamberg and Würzburg as an exception, are the centre of action also for the energy region association.

In terms of environmental policy, most of the towns in the metropolitan area have environmental and climate protection initiatives and cooperation plays an important role. The major towns, Nuremberg, Erlangen, Fürth and Schwabach, of Nuremberg metropolitan region are meeting in an environmental conference of the towns of Middel Franconia (Umweltkonferenz der Städteachse) every quarter of the year since the 1990s. On the metropolitan area level, a climate alliance of all mayors and heads of districts aiming for climate protection and sustainable development is planned for 2011. In Erlangen important city actors cooperate in a city-wide alliance and partly commit to implementing climate protection measures. However, the energy region association is not very well integrated in the other initiatives in the field of climate protection.

The relation of the partnership to regional governmental actors is important for the development of the energy region association both in economic and environmental terms. The associations activities are strongly linked up to the objectives of economic development of the economic department. Due to the primarily economic orientation of Nuremberg's regional partnership, the environmental departments have little influence and can most notably influence the issue energy and building.

6.8. Reflection

The energy region association Nuremberg foremost thinks in business development and research project terms. It takes the role of a broker for actors in energy technology

and energy-efficient buildings. The strong focus on technologies assigns environmental and climate protection a secondary role because these are only indirectly addressed. Nevertheless, research and development on new renewable energy supporting technologies can have a noticeable contribution to the transition to sustainable energy society. A strengths of Nuremberg region are the events and actors in the building and energy sector which majorly influence the implementation of energy efficient buildings of all kind. Modernisation efforts thus contribute particularly to a more sustainable use of energies in buildings.

Regarding the network of the regional partnership Nuremberg, it seems that the pooling of actors results in few intense relations. The network of the energy region association appears to be relevant for getting to know others in the field and in some cases for information exchange but not for cooperation projects. Research activities on alternative technologies are rather single undertakings and external to association's activities. Information exchange is restricted to certain actor groups; to some extent information is also disseminated. Yet, due to a large amount of actors in the field of sustainable energy, activity on renewable energy technologies, buildings and energy efficiency is high. The high number of actors and few cooperations might not be to the negative if the single projects are deemed valuable and information exchange is seen as a very fertile ground for further (single) activities towards a transition path.

7. Munich for climate protection

7.1. Introduction

The regional partnership is identified and characterised by participation in the alliance 'Munich for climate protection'. Participants in the alliance are listed on the web page and the intermediate and final report¹⁸.

'Munich for climate protection' has three main objectives. First, it aims to spot cost-effective local capacities to reduce emissions, particularly of CO₂. Secondly, CO₂ shall be reduced by at least 50% until 2030 compared to the base year 1990 (Climate Alliance objective). Third, the alliance is to become a networking platform for actors who aim to bring about these CO₂ emission reductions. Participants state to commit themselves to CO₂ emission reductions in their areas of responsibility and according to the conditions of their sector.

The main task of the alliance is to provide a networking platform and a structure to plan meetings and facilitate contact between participants. The participants in 'Munich for climate protection' gather in this structure to exchange information and to come up with innovative ideas and strategies that result in the development and implementation of climate protection projects.

7.2. The actors

Munich's alliance for climate protection involves actors from all three spheres of society. Despite of the initial idea to motivate the private sector, about one fourth of the participants is municipal actors, the rest is halved in businesses and NGOs. In January 2009 the alliance had 75 members. Interested actors were constantly joining during the course of the alliance such that in the end 97 actors participated in the first phase of 'Munich for climate protection'.

The environmental department is the leading actor supported by an office for organisational tasks under command of an environmental consultancy (Arqum GmbH). The non-municipal actors stem mainly from the fields transport, production, services, finances, energy, buildings, consultancy and education. Eight actors are assigned a special role. They are heads of one of the panels in which the alliance is thematically split¹⁹.

These heads are Munich utility (Stadtwerke München GmbH (SWM)) and the Bavarian Center for Applied Energy Research (ZAE Bayern) for the panel on 'sustainable energy provision'. The chamber of commerce is the head of the panel on 'efficient energy use' and Munich Verkehrsgesellschaft leads the panel on 'sustainable mobility'. The panel on 'energy-efficient building'²⁰ is led by in total four actors, two municipal

¹⁸The data sources that have been used for the case analysis of Munich region partnership can be found in appendix A.

¹⁹In German heads are named godfathers (Pate) and other participants alliance partners (Bündnispartner)

²⁰In German the panel is called 'Konsistente Energieeinsparung' which translates to 'consistent energy saving'. Since the actual focus is on buildings the panel will be named 'energy-efficient building' in the following.

building societies, a municipal society for urban renovation and one private building society²¹.

7.3. The package deal

The 'package deal' of the regional partnership in Munich has a broad and encompassing programme. The decision on the selection of issues is taken by the city's administration based on the focus in climate protection of the department for health and environment. The package deal is thus no result of a non-hierarchical negotiation process. Through this choice of issues, the department for health and environment aims to cover every aspect of CO₂ emission reduction and climate protection. The issues of the package deal correspond to the themes of the four panels. The issue 'energy-efficient building' was separated from the general issue 'efficient energy use' in industry due to its importance for emission reduction. Fifth, a working group, 'Arbeitskreis Bildungs- und Öffentlichkeitsarbeit', is responsible for education and public relations, that is dissemination.

Table 7.1 shows which actors are involved in which issues. The involvement of actors is deduced from the protocols of the panels between April 2008 and January 2010. Not all participants are listed in detail but the actors listed in the table are to a large extent abstracted in order to give a general overview of the actor structure.

The number of participants differed between the panel meetings and between the different panels. The issue 'energy-efficient building' has the highest number of participants, followed by 'efficient energy use'. In general the numbers of participants at each panel decreased during the course of the alliance. About one quarter of the participants is always composed by different representatives of the departments of Munich city. Moreover, often companies have more than one representative. The composition of every panel session was different from those organised before, since all participants were free to join each panel session and not obliged to follow one topic only. Therefore the table gives a good overview of what kind of actors were attracted by what issues. Two things limited participation. First, the extent of activism by participants differs. Although the panels were open to all participants, most actors did not take the opportunity to participate in more than one panel. Second, the time of many participants was limited and especially working groups are constrained by this factor.

The issue 'energy-efficient building' is dominated by actors from the construction sector. In the panel on 'efficient energy use' businesses of different branches constitute the biggest part of participants. This seems logical if it is considered that foremost energy efficiency in businesses was discussed. However, the participation of businesses decreased until the third panel. The issue 'mobility' attracted both companies as well as associations active in the field of mobility. Participants in the panels on 'energy provision' are renewable and traditional power companies, engineering offices as well as associations on the topics renewables and energy efficiency. The working group on dissemination consisted of different educative institutions and NGOs. NGOs took part in at least one panel session of all four panels.

²¹GEWOFAG Gemeinnützige Wohnungsbaufürsorge AG München, GWG Gemeinnützige Wohnstätten- und Siedlungsgesellschaft München, MGS Münchner Gesellschaft für Stadterneuerung mbH and Ottmann GmbH & Co Südhausbau KG.

Table 7.1.: Issues and actors in Munich’s regional partnership

Issue	Number	Actors
energy-efficient building	~ 50	private building society, 2 municipal building societies, municipal society for urban renovation; tenant’s association, house owner’s association, modernisation centre Munich city, 3 chambers/guilds, architect offices, Munich city, university, 2 banks, Munich utility, organisation office, engineering companies, environmental NGO
efficient energy use	~ 30-50	chamber of commerce; automotive company, lightning company, organisation office, power company, engineering companies, energy consultancies, Munich city departments, telecommunication company, university, Munich utility, hospital, ZAE Bayern, renewables association, banks, fair company Munich, air-conditioning companies, environmental NGO, chamber of building engineers, Munich public transport company
mobility	~ 30	Munich public transport company; association for cyclists, association for motorists, 2 carsharing companies, Munich city departments, universities, automotive company, 2 environmental NGOs, energy association, chamber of commerce; 2 towns; inventor’s association, organisation office
energy provision	~ 30	Munich utility, Bavarian centre for Applied Energy Research; Munich city, organisation office; Telecom communication company, renewable energy company, solar power company, inventor’s association, association for solar power, renewable energy association, education association, bank, energy advisor association, 2 power companies, public transport Munich, financial company, engineering offices
dissemination	> 20	universities, environmental education centre, adult education centre and schools, NGOs

Package deal implementation

The package deal of Munich is implemented through public relations measures, information events, development of new concepts and implementation of projects. The panels on mobility and building had the most ideas for climate protection measures. For example, carsharing as an alternative transport option, bicycle recycling initiatives and ecological taxis that are hybrid or natural gas passenger cars were promoted via existing communication mediums of Munich city, for example a cycling agenda, leaflets and information panels at metro stations. Thereby, those mediums were used more effectively. Moreover, further parking spaces were offered to promote carsharing.

An information stand, information material and a homepage served to inform the general public. The project ‘car-free during fast’ (Autofasten), a book with tips on

energy saving (Klimasparbuch) and the educative and cultural event 'Klimaherbst'²² (climate autumn), initiated by participants in the working group on education and public relations, aim to involve the public.

In the panel on 'energy-efficient building' amongst others a strategy to link the rent index with energy consumption and a new quality standard for residential buildings for Munich's fund for energy saving modernisations were developed. Both measures were already planned for the integrated strategic concept, however their implementation was assumedly easier in the context of the panel. Moreover, support and information needed by owner's associations in order to achieve highly energy-efficient modernisation of their houses were identified and a document that solves conflicts between renters and tenants was drafted. Finally, the solutions found were published in a handbook.

Concrete project ideas on 'energy provision' and 'energy efficiency' are predominantly implemented by Munich utility. It is engaged in several projects for renewable energy production, however only the idea to use geothermal energy for a new district of Munich has probably been triggered by the alliance. Furthermore, it engages in energy efficiency by promoting energy saving in low-income households and developing a cooling system. Moreover, a fuel cell-CHP installation retrofitted to biogas use and a pilot installation for solar air conditioning have been implemented by other actors.

The effects of some activities are not noticeable or failed due to institutional hurdles, for example the organisation of a bicycle flea market and the recruitment of voluntary cycling trainers. Also, the idea of a park-and-ride area covered with a solar panel roof has not yet been implemented due to lack of finances and a long institutional processes. In contrast, information exchange on solutions for energy efficiency which serves to inspire single projects of companies is not traceable due to many similar initiatives and no obligation for implementation. Finally, some projects, such as the promotion of more climate friendly transport by schematic CO₂ statements for the different alternatives and the integration of a CO₂ calculator in existing planners for driving directions are still in the implementation phase.

7.4. Munich network

Diagram 7.4 shows the interaction between different actors that are formally related to the alliance 'Munich for climate protection' by signature of the joint statement²³. The actors selected for the visualisation of the network share certain attributes as explained in the data section, which is a valid focus to define a network's boundaries (Rowley, 1997). However, the selection of the boundary and also constraints in time allow to show only certain relations that might be representative for others. Only some 'normal' participants and their relations to the other actors are presented. The chosen network boundary is likely to represent the main organisations which interact with each other to achieve a (common) purpose (Provan et al., 2007, 482). By having set the boundary in this manner, most of the relations constitute more than a link by formal membership. In contrast to the other case, the regional partnership is not itself an actor but a construct of cooperation and is hence not included in the diagram.

There are several different intensities of relations that can be identified in the network. The relations identified are an interpretation of the data and relate to the regional

²²'Klimaherbst' is organised by a network of about 60 NGOs, media, associations and education institutions, recently also companies. It was already established in 2007 but became a partner of 'Munich for climate protection' in 2009.

²³Explanation for the abbreviations used for the actors can be found in Appendix C

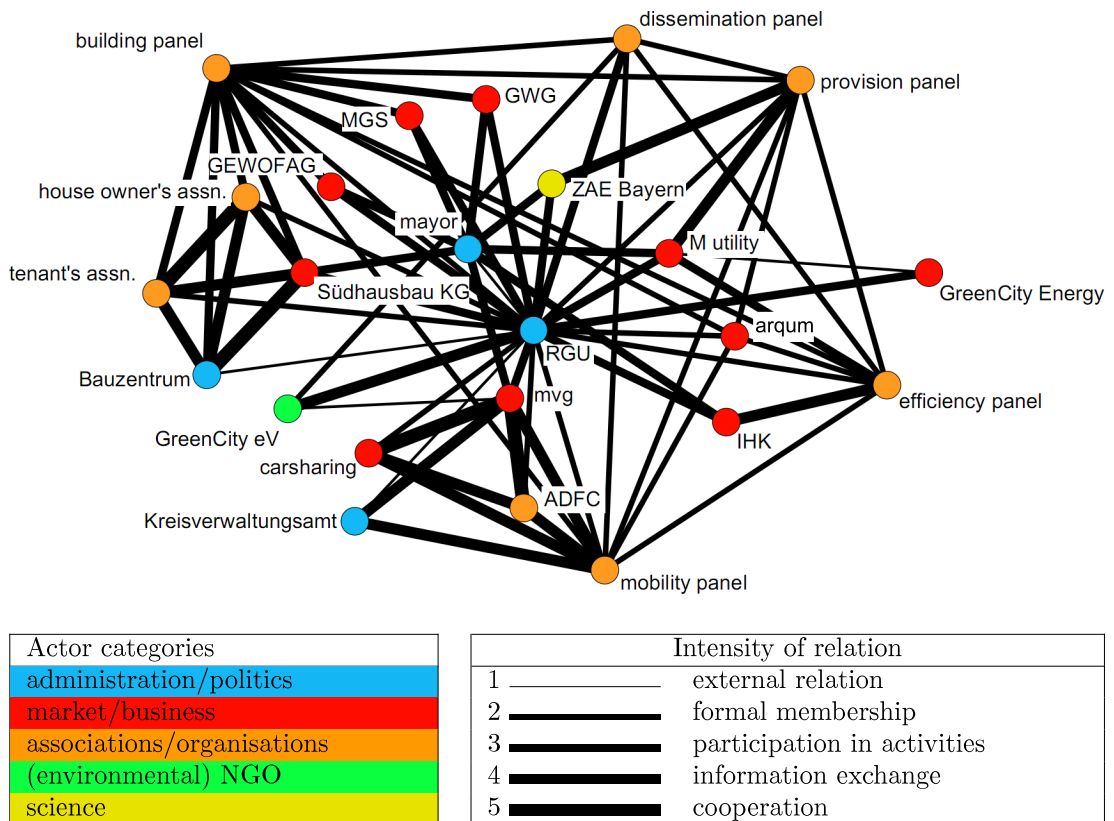


Figure 7.1.: Munich network

partnership as framed by membership in the alliance 'Munich for climate protection' and the 'tasks' necessary for a transition to sustainable energy society.

Intensity one corresponds to 'external relation' which can be relations or affiliations that are not primarily due to 'Munich for climate protection' but important for understanding the network shown. Relations that are not built by the alliance may in some cases be stronger and more cooperative but not always in line with the objective of climate protection. Formal membership implies that actors have signed the joint statement and most likely have participated in all plenary sessions of the alliance that were organised about every year. The other levels of relation relate to participation in panels, more intense information exchange in smaller working groups and cooperation on climate protection projects.

7.5. Relations and actors

In Munich the formal structure and organisation of the alliance has a big influence on the network structure. Three plenary sessions build the frame of the alliance. In November 2007 the opening plenary session took place. The first results were exchanged at the intermediate plenary session in March 2009 and the final results were presented at a plenary session in March 2010. The plenary sessions were attended by about 200 to 300 persons. Every panel organised three panel meetings. Two rounds of the panels took place in 2008, one in April and the second in October to November. The third round of panels was organised in the period of October 2009 till January 2010. Some of the panels organised working groups in addition to the panels that met every two

months.

The network of the regional partnership has successfully established some new relations on the other hand it relies on several already existing relations. For example, the selected municipal actors, department for health and environment, county administration (Kreisverwaltungsamt), centre for building modernisation (Bauzentrum) and the mayor are naturally affiliated and cooperate on different topics in their daily administration tasks. External relations are typical for market and civil society actors. For instance GreenCity Energy GmbH and Munich utility currently jointly build a hydro-electric power plant on the river Isar but externally to the alliance. Furthermore, GreenCity e.V. regularly receives orders and cooperates with Munich public transport to implement projects or measures relating to sustainable mobility or education. In the frame of the alliance they organised an information stand on the alliance and the project 'car-free during fast' which belonged to the activities of the working circle on education and public relations.

Munich administration plays an important role. It coordinates, advises and oversees many of the activities. Therefore its main relations have been identified as participation in activities. NGOs and education institutions are mainly used as disseminators of information. Some of them receive orders of the department of health and environment to implement certain measures, such as GreenCity e.V. Actors of the private sector show very different involvements. One part actively participates, a second part is more passive and a third group of global players, which are not included in the diagram, have private strategic discussions with the department for health and environment. Heads of panels and their companies or organisations are generally more involved than 'normal' participants. They were invited to discuss the plan for an alliance and in the course of the alliance regularly met to exchange experiences and status of their work with the third mayor. Although plenary sessions and meetings with the mayor for heads of panels aim to bring all participants together, closer relations and more intense information exchange and possibly cooperation is concentrated in panel meetings and in particular in working groups.²⁴.

Two of the panels have not established additional working groups. The panel on 'sustainable energy provision' was dominated by the two heads Munich utility and ZAE Bayern. An exchange of information and discussion with interested actors took place during the panel sessions. ZAE Bayern is supposed to form a counterweight for Munich utility because energy provision is generally dominated by municipal utilities or large energy providers. In consultation with the organising office 'Arqum' and the department for health and environment, the two heads discussed and planned panel sessions in internal meetings. Munich utility was also very active in the panel on efficient energy use. The chamber of commerce's main motivation to take part in 'Munich for climate protection' is to convey the point of view of businesses and to stress the necessity of cost-effectiveness. It understood its role as coordinator of the panel not as main actor. In the panel sessions companies mainly exchanged information in order to develop measures for their own companies.

The two remaining panels included a sub-structure of working groups. Some of their relations are denoted as cooperation. The panel on 'energy-efficient building' aimed to initiate improvements in the processes that proceed energy efficient modernisation. The heads formed five working groups of up to 15 participants. Emerging relations have the intensity of information exchange. Often the exchange resulted in cooperation

²⁴The panels have been included in the diagram to clarify the relations that emerge from the panels. Moreover, they represent the participants in the panels and their relations.

relations. For example, one of the building societies closely cooperates with the centre for building modernisation to overcome general constraints in modernisation.

The main objective of the panel on 'sustainable mobility' was to reduce individual motorized transport and to make citizens aware of alternatives. In its working group meetings it combined several topics. About 15 participants exchanged information every two months. The topics were mostly managed by municipal actors with one exception being the German cyclist federation, ADFC. The ADFC and one carsharing company moreover cooperated with the mvg on certain projects, often related to public relations. Munich has several more carsharing providers, however, only one carsharing provider had sufficient financial resources and the ability to expand in order to acquire new parking spaces.

Finally, the working group for education and public relations needs attention. It was not noticed by all actors maybe due to its foundation after the official start of the alliance. Participants were mainly educational institutions such as universities, environmental education centre, adult education centre and schools as well as NGOs. Since it only met twice until March 2010 to discuss how to disseminate information on the alliance's projects and achievements as well as to educate and involve the citizens, its relations are mostly participation in meetings and some information exchange.

7.6. Capacities

In addition to relations, financial resources, leadership and the institutional set-up have a big influence on the shape of the regional partnership.

Institution The basis for cooperation and participation in the alliance 'Munich for climate protection' is the joint statement. The statement is rather non-committal. A participant pledges himself to support the reduction aims of Munich city. A failure to fulfil the obligations is not sanctioned. An implicit right attached is to use one's membership in the alliance for marketing purposes which can result in 'greenwashing' if the actor is rather passive.

Organisation The management of the regional partnership in Munich is predominantly influenced by municipal actors and selected heads of the private and research sector. The heads can themselves decide on the internal structure and organisation of the panel. However, the environmental department and the mayor initiated the alliance and municipal actors are present in all different kinds of meetings.

The alliance is currently evaluated by the department for health and environment. Already during the course of the alliance, it turned out that the effects of almost all projects in the different forums are hardly measurable. The intention to make all efforts measurable in CO₂ reduction thus failed. Therefore, descriptions of (best) practice serve as a bench mark. For the continuation of the alliance, the structure of the alliance will be changed to overcome some of the failures of the first phase. Participants will become a member of a club and need to be active members which implement measures to reduce CO₂ emissions because passive membership was a problem of the first phase. Moreover, the panels will be replaced by one or two plenary sessions per year. The issues of the package deal shall be closer to current events.

Knowledge Internally knowledge exchange does not play a major role. However, information exchange with the alliance as a platform is highly valued and common

practice. In order to explore possible strategies to achieve the objective of 50% reduction of CO₂ emissions Munich city commissioned a study in 2004. The recommendations for action in the fields: buildings, transport and energy provision were taken up. Moreover, the study recommended that all sectors and relevant actors need to contribute their share to the reduction in emissions and that the department of environment and health should coordinate the activities. The result can be seen in the alliance (Timpe et al., 2004, 21-24,265).

Leadership For the regional partnership in Munich, particularly two actors play an important role. 'Munich for climate protection' is officially led by the third mayor of Munich, Hep Monatzeder, who is responsible for the issues environment and climate protection in Munich city. The department of environment and health coordinates and manages the conceptual part of the alliance. The close interaction of the green-party mayor with the department for health and environment is an important leadership for Munich's striving for sustainable energy and environmental protection. Munich's climate alliance is only one building stone in their strategy. Furthermore, proactive heads and participants play a crucial role, too. According to Delker, the representative of Südhausbau KG, the motivation to initiate projects and implement measures increases with equally motivated actors.

Resources The budget and additional personnel for 'Munich for climate protection' is limited and action is dependent on the effort invested by participants. The budget of the department for environment and health for the alliance accounted to about 100.000 Euros which was mainly used to pay the organisational office. All additional investments were made by the participants on a voluntary basis. Implementation of projects thus depends on investments of businesses. At the department for health and environment, two new positions were created for the implementation of the integrated strategic concept. The work on the alliance was undertaken next to the usual tasks of administration, company and organisation personnel. For the intensive organisational work an office was hired. It was staffed by employees of Arqum GmbH - an environmental management company - and organised all meetings, invited participants and presenters and supervised the agenda and the mailing list.

7.7. Context and role of the regional partnership

Munich city is a member to the European 'climate alliance' and the association energie-cité. Information exchange on climate protection and local sustainable energy policy inspired Munich's strategy for sustainable energy as well as Germany's integrated energy and climate programme. The reduction of CO₂ emissions aimed for corresponds to Germany's and the 'climate alliance's aim. Otherwise the national level does not play an important role for the regional partnership. On the regional level, the regional partnership does not correspond to any formally defined region. It focuses on Munich city but also encompasses regions or cities according to the location of certain participants.

On the local level however, the alliance Munich for climate protection becomes more and more embedded in a system of climate protection strategies. Within the integrated strategic concept all municipal departments cooperate. The alliance is a cooperation of state, market and civil society actors. A new building stone is 'Gemeinsam' (jointly)

which serves to involve the public as disseminators in strategic discussions. Munich for climate protection is one of the projects that has been subsumed under this public process (Landeshauptstadt München, 2010). Hence, the alliance supplements the other building stones of Munich's strategy for climate protection and sustainable energy with its focus on activation of the business sector and implementation of measures.

7.8. Reflection

Munich's alliance for climate protection activates actors from market and civil society to implement measures - sometimes in cooperation with city departments - that help to make a step forward on the transition path. By encouraging especially business actors to implement climate protection measures, a large share of CO₂ emissions can be addressed. However, the passiveness of actors and dependency on their motivation, especially of businesses, is a downside of the alliance. If measures are to trigger real steps forward on the transition path, there is a need for thorough evaluation and monitoring of the process coupled with stricter obligations.

The regional partnership's strength lies in its structure and the motivation of some of its heads. The structure, especially the panels with working groups, facilitates closer contact and cooperation of actors that did not have close contact before. Moreover, it defines clear issues and assigns clear responsibilities to certain actors. This improves the focus of action. In addition, the good integration into other measures in the sustainable energy and climate protection field, assigns the alliance a clear role.

In the context of the general developments in climate protection and energy policy, the regional partnership Munich is a valid instrument to facilitate network building and information exchange between businesses as the main causers of CO₂ emissions. Particularly, in the fields of mobility and buildings progress was made and cooperation seems successful. Having been established in the end of 2007, it is not possible to judge whether the alliance triggered a real change in thinking with more of its participants. Some of the project ideas are still to be implemented which is often due to the institutional implementation lag. Moreover, the impact of the changes in the institution and organisation capacities remains from this perspective unclear.

8. Comparative analysis

This chapter analyses the sub-questions and characteristics of the regional partnership across the three cases. The results will give an overview of how regional partnerships contribute to solving the problem of a transition to a sustainable society. This allows to draw conclusions in the following chapter and to reflect on both lessons learned and recommendations for future research.

All partnerships were selected because they promised to be active in urban or city regions. The degree of urbanity and the related problems of all regional partnerships are similar. However, region is understood differently in the partnerships and its use is adapted to the local circumstances and functional requirements. Hanover and Nuremberg regional partnership are both explicitly oriented towards a formal region. The responsibilities of Hanover region reach further than those of the metropolitan area Nuremberg. Furthermore, Nuremberg's regional partnership actually focuses on the agglomeration centre plus some other bigger cities. In Munich, 'regional' is defined pragmatically. The partnership does not correspond to a formal region definition but regional denotes that also actors from the region surrounding Munich are included. The regional partnership is but foremost focused on Munich city and has a strong link to all other municipal climate protection programmes.

8.1. Package deals and actors

The content of the package deals is to a large extent predefined by either a municipal department (Munich and Nuremberg) or the partnership management under influence of the political-administrative and business actors (Hanover). Hence, the package deal is often not a real deal that emerges from negotiation of all participants. The studied partnerships do consequently not fully satisfy the definition of partnerships which states that actors are involved in non-hierarchical processes. Hanover may be seen as an exception. The influence of diverse actors on the package deal may remind of a non-hierarchical decision process, if the difference in weight of voices is neglected. Furthermore, negotiations within group, panel or forum meetings of all regional partnerships assumedly present a non-hierarchical process.

Economic thinking plays a major role for the choice of package deal elements. In Nuremberg the economic department takes a leading role, in Hanover, mainly market feasibility guides the decision on which issues campaigns are implemented and in Munich, mostly business actors were to decide what projects they were willing and able to implement. Creating employment opportunities is an important intermediary goal in both Nuremberg and Hanover. Thus, all regional partnerships aim to combine sustainable development with economic development but use different approaches.

The content of package deals differs particularly between Nuremberg and Munich/Hanover. This is due to the stronger economic focus of Nuremberg. All regional partnerships put an emphasis on the issue of building modernisation (see table 8.1). Moreover, an element of energy efficiency, aimed at both private and business consumers,

is included in every partnership. Mobility plays only a role in two of the partnerships. This does however not take into account measures incorporated in other programmes of the regions. Renewable energies are at least indirectly addressed in all three regional partnerships.

Table 8.1.: Comparison of package deals

Hanover	Nuremberg	Munich
buildings	buildings & energy	energy-efficient building
energy saving/energy efficiency in businesses	(indirectly) energy efficiency/consultancy	efficient energy use
mobility	electrical technology	mobility
education	power electronics	dissemination
solar power	automation	energy provision
wind power	-	-
chp	-	-

Regarding the actors, all regional partnerships involve market and state actors. Civil society actors are only involved by the regional partnerships of Hanover and Munich. In Nuremberg, an inclusion of NGOs was never planned for. However, organisations and associations are common actors as well in Nuremberg. In the regional partnerships of Hanover and Munich, other than state and market actors were included because certain participants proposed so. For instance, Munich first envisioned to activate the business sector, but soon recognised the importance of other organisations, for example the dissemination function of educative institutions.

Power companies are included in the regional partnerships of Nuremberg and under special conditions in Hanover. In Munich a supposed competition between the municipal utility and the power company led to the exclusion of the latter. The inclusion might depend on the degree of regionality. The more spread a regional partnership, the more the involvement of and interaction with regional energy providers is needed.

The involvement of actors is partly dependent on the role the initiator of the partnership allocates to participants and to a large extent on the societal function they have. Market actors, that is technology producers, power companies/utilities, craft businesses or engineering offices, are in general more involved in technology-inspired or business-specific issues and expected to contribute financial means. Municipal actors are involved in all issues that are primarily initiated by them such as energy saving and buildings in Hanover. In Munich's regional partnership, municipal departments appear omnipresent. NGOs and associations focus on their core areas, often these are linked to the issues mobility, solar power, energy saving and dissemination.

A problem that evolves both in the regional partnership of Nuremberg and Munich is passiveness of actors. It is particularly a problem in the association where a membership fee is paid but also in the alliance where action is voluntary. Although the number of participants in Hanover is equally high, this issue is not problematized. However, some members of the sponsoring society resigned because of different expectations. The problem of passiveness might be linked to the felt necessity for the partnership. Some actors in Munich and Nuremberg might not see the additional value of a partnership or institutionalisation of relations for their own purposes.

8.2. Relations and networks

All regional partnerships that were studied embrace a network strategy. Networking is used as a pragmatic approach to involve diverse actors, establish contacts and enhance their communication. The regional partnerships differ in the chosen formalisations and structures. In Munich the initial idea of a network was to form an alliance with market actors to reduce CO₂ emissions. However, Munich's network was broadened and includes actors from all spheres of society. Similarly, in Nuremberg local circumstances demanded to combine the strengths of foremost business actors in the fields of energy and energy technology. But here an association was founded and membership of NGOs is in contrast to Munich not planned. In Hanover, actors in climate protection and energy policy are coordinated through the network established by the agency for climate protection. Both in Munich and Hanover network building is facilitated by regular points of contact, in panels, forums, discussions and events. Nuremberg also features meeting possibilities but these have more often an ad hoc character.

The size of the whole networks in terms of total members of the partnerships ranges from 60 to 100 actors. By drawing network boundaries, the identified core (and representative) actors amount to about 25 in Munich and Nuremberg. The selected network of Hanover is slightly smaller, it includes less than 20 actors. It seems that in all cases around 20 actors take a more active role in the regional partnerships.

The networks of the three regional partnerships differ in the distribution of relation intensities. Whereas in Hanover, the highest intensities of information exchange and cooperation are evenly distributed among different actors, in Nuremberg mostly relations between organisations closely related to the organising association have a high intensity and in Munich only selected actor groups cooperate and exchange information in smaller groups. This reflects to some part the organisation of the regional partnerships. Especially, Munich and Nuremberg show high relation intensities in certain working groups. In Hanover, different actors play an important role in financing or supporting the tasks of the climate protection agency and the relations of higher intensity correspond to these roles.

The intensity of relations in the networks may partly be allocated to the function fulfilled by the regional partnerships. In Hanover, the main functions of the regional partnership are public relations and promotion of new technologies. Accordingly, political actors such as the city but also energy providers and an NGO have high intensity relations. The latter because they support the functions of the partnership. Nuremberg's network presents mostly active members and within this boundary, the energy region association's role in pooling actors may be visible. Only few actors are assumed to purposively exchange information and to cooperate but many are members and a selection of actors participate in activities. In Munich, the function of the alliance to connect especially business actors and facilitate thinking about concepts and projects is partly reflected by the centrality of business actors and the bundling of actors in issue-related groups.

Nevertheless, the general pattern of relations appears similar in all regional partnerships. The most common intensity of relation is participation in activities. This entails information exchange to some extent. Information exchange in smaller groups is most common in working groups and can be considered more intense. Smaller groups of actors are most likely to result in cooperation. On the other hand cooperation is common among affiliated organisations either through subsidiary companies or identified overlaps in issues. In general, all most common intensities of relation feature information exchange to different degrees. The most common product of Hanover's

relations is promotion through campaigns or events. Nuremberg and Munich attempt to implement more tangible projects and measures, but information exchange plays an equally important role in their regional partnerships. Hence, in the regional partnership of Hanover, there is a strong focus on disseminating information to non-members and the general public, in Munich and Nuremberg information provision is more directed towards the members but there are also occasions where information is provided to non-members.

8.3. Capacities

Relations and emerging networks have been identified as the backbone of the regional partnerships. Furthermore, in all regional partnerships leadership, resources, institutional and organisational capacity play a major role. Knowledge conveyed through learning from others is not deemed very important in any case. Instead information exchange is emphasised and for major decisions external knowledge is consulted.

The most visible leaders of regional partnerships are political actors from the environmental administration (Hanover and Munich) or economic administration (Nuremberg) which initiated and shaped the regional partnerships to a great extent. Their inspiration and motivation is also important for the continuation of regional partnerships. In all partnerships businesses or NGOs (only in Munich and Hanover) can also exert some influence on the institutionalisation and network building.

In terms of financial resources and personnel the endowment of Hanover is an exception. This is due to its institutional form of a non-profit company with shareholders²⁵. On the other hand, the agency and its personnel is primarily paid for organising the marketing of sustainable technologies and promoting more energy-efficient behaviour. The regional partnerships in Nuremberg and Munich have considerably less financial means. They are either dependent on the obligatory membership fee of which a small staff is paid (Nuremberg) or financial input of members during project implementation and meetings.

Regarding organisation capacity, Nuremberg energy region association similar to Hanover's climate protection agency also has to fulfil a clear mandate whereas Munich's joint statement can be considered a clear but rather non-committal objective. The organisations implementing the mandate in Hanover and Nuremberg have their own tasks in addition to establishing a regional partnership. In contrast, the purpose of the alliance in Munich is foremost establishing a network which lives only from the action of its participants. Hanover's and Nuremberg's regional partnership are thus more task-oriented but especially Nuremberg's association does not always live up to active member expectations. Evaluation does only play a role in Hanover (partly external) and Munich (internal).

8.4. Development and context of regional partnerships

The regional partnerships have developed slightly different over time. Hanover's and Munich's regional partnership have or are about to change most over time. In Hanover, the shareholder structure changed once with the inclusion of the regional energy provider. Membership in the sponsoring society is subject to a constant change, generally

²⁵There exist several further energy or climate agencies throughout Germany. However, they often focus on citizen or company advice and rarely have that high funds.

featuring an increase in membership. Regarding the package deal, after a consolidation phase and according to the development of the market, further issues were included. The regional partnership is likely to be continued in its actual shape although there are attempts to formalise and better integrate all regional actors by means of a pact.

In Munich the developments of the first years were based on the concept of an alliance and network building. However, for the coming years the organisation of the regional partnership will offer less formal and scheduled meeting possibilities because the formal meeting structure is perceived as an obligation. On the other hand, the issues of the package deal will be more oriented toward current events and participants have to proof activism. The regional partnership will thus assumedly remain focused but feature less presence meetings of actors. In Nuremberg no big changes are witnessed. The association has broadened its tasks by an operational unit. The general package deal and composition of actors remains economical oriented.

For the socio-political context, strategic and implementing levels of governing play a major role. According to a survey, the public's trust in local and EU levels of governance is higher than in national levels (EC, 2009). In Germany, cities, communities and their utilities have been recognised as central for a transition to sustainable energy. Regional climate action programmes are thought to be a conducive factor for regional transformations (BMU and VKU, 2008). Regional partnerships cannot be equated with the strategic climate action programmes. But they connect the most important actors with the aim to advance the transition to a sustainable energy society.

The general focus of regional partnerships acknowledges the EU and national strategies of climate protection. This is obvious with the percentage reductions of CO₂ which are chosen as an implicit target and the adaptation of energy efficiency and renewable energies in the package deals. However, regional partnerships do set more specific sub-foci for instance, on mobility. Only in Hanover's and Nuremberg's regional partnership federal funding plays a role. The funding is not used for the partnership itself but to support communities in implementing their own communal climate protection programmes. Core partnership activities such as networking and information exchange are not under strong influence of higher level policies.

9. Conclusion and discussion

This research aims to understand *in what way and to what extent regional partnerships can contribute to solving the problem of a transition to a sustainable energy society*. By analysing the package deals, the actors involved, their relationships, partnership capacities and the socio-political context, the contribution of regional partnerships to the transition problem is deconstructed. The comparative case study shows that regional partnerships can help making a small step forward on the transition path, foremost by exchanging information and building relations. Besides, regional partnerships' objectives are strongly influenced by economic interest and thereby less oriented towards sustainability. Furthermore, the interdependency with local and regional government may restrict the choice of issues in package deals.

9.1. Contribution to solving the transition problem

The regional partnerships analysed differ in their contribution to solving the transition problem. If a share in responsibility is the 'measure' of contribution, Hanover and Munich show the highest activity in terms of actors having higher levels of relations in the networks and being more formally organised. Moreover, both regional partnerships are well embedded in the socio-political context and directly aim at transforming the society. Even if Nuremberg is perceived as a regional partnership that actually aims for a structural change in accordance with a sustainable energy society its measures remain indirect and, except for the issue 'energy-efficient building', network development does not appear to facilitate a considerable higher share of responsibility.

Considering its intensity of relations, formal organisation and embeddedness in the regional context, Hanover is most successful in contributing to solving the problem of a transition to a sustainable energy society. The regional partnership may be regarded as a motor that effectively and continuously drives both business and civil society's change in behaviour.

Although Hanover's regional partnership might be judged successful in terms of its internal goals, in terms of the transition problem the extent to which regional partnerships contribute to the solution of the transition problem is small. The main output of the studied partnerships is information exchange. The fact that information is exchanged among larger groups of actors, of which some actors have had no contact before, is positive. Indeed, regional partnerships do to some extent kick off a critical thinking process about the problem of transition. Information exchange is thus facilitated but it is not dependent on partnerships nor exclusive to them. In the regional partnerships studied there is a certain potential for synergies, however, ambitions involved in regional partnerships stay rather low. Network structures are actively supported by regional partnerships - but actual synergies and more advantages than easier retrieved information are not always aimed for by the actors.

The conclusions drawn on information exchange need to be viewed in the light of two recognitions. When affirming that information exchange is the main output, it has to be acknowledged that regional partnerships may only appear to trigger little

action. The impression might be challenged to some extent if causal links between information exchange and action were traceable and assessed. Another hurdle (regional) partnerships have to deal with are possibly conflicting obligations of actors between partnership participation and usual jobs, especially regarding time and resources. The first may let partnerships' contribution appear small and the second is a restriction on partnerships' actual opportunities.

Being supposedly different from governing, a regional partnerships has an added value if it complements government strategies according to its special abilities but remains embedded in regional policies. In that sense, the integration of regional partnerships into environmental policy could especially be improved in Nuremberg. In Munich, the alliance is well embedded in municipal strategies and it specifically aims at certain societal actors. In Hanover, public relations are outsourced to the regional partnership and thus complement regional and municipal strategies.

A benefit of interdependency of regional partnerships and states is the possible influence on policy-making by participating actors. But there is also a downside of the prevalent interdependency with state actors. The package deals are no deals and stay close to municipal or regional measures. There is few attempts to critically reflect on the issues included in package deals. In the cases studied, economic interest may shape the objectives and actions of regional partnerships either way - when environmental departments aim to reconcile environment with economy or when partnerships have strong leaders with economic interest.

The regional partnerships studied may be doubted to be 'real' partnerships. The involvement of actors is to a large extent restricted to market and state actors. The minimum condition of actor involvement may thus be fulfilled. However, due to the economic interest playing an important role, the actual striving for a sustainability goal may be disputed. Within groups of actors discussions probably live up to non-hierarchical processes, but the overall direction is mainly influenced by political actors. Hence, the regional partnerships studied appear one-dimensional.

9.2. Discussion

This chapter looks back at the research questions in regard to propositions made in the studied literature. Further, the methodology and data is reflected on. Finally, recommendations for further research are given and implications for the use of regional partnerships are discussed.

9.2.1. Reflection on research questions, theory and research field

The findings of the comparative case study mostly confirm propositions made in the theoretical framework chapter and by relevant authors of the research field. Only few assumptions made in the analytical model proved not correct.

For instance, in contrast to the initial assumption sustained by Van Huijstee et al. (2007) negotiation on *package deals* does not play an important role in regional partnerships. The inclusion of elements is rather pragmatic and mostly based on economic interests. However, a larger part of the participants shows willingness to interact, which is a sign of consensus (Driessen & Vermeulen, 1995). The implementation of the 'plans' depends on the strategy behind the regional partnerships.

If Nuremberg is considered a reasonable exception, the study confirms that regional partnerships involve a relatively broad spectrum of *actors* from different spheres of

society which is an element of the partnership definition (Van Huijstee et al., 2007). Due to Nuremberg's special focus on business development, and the resulting indirect striving for a transition through new technologies, a more narrow inclusion of actors is reasonable. Indeed, NGO participation in the regional partnerships of Hanover and Munich was also not foreseen from the beginning but was proposed by civil society actors or arose from the fact that the target group was not as active as wished. The involvement in the different elements of the package deals generally follows the roles and societal function of actors. Despite of actors retaining their traditional functions, this does not entail a separation of actors according to their sphere of society.

The *relationships* that emerge in the network have a medium to high intensity of relation and are mostly based on participation and information exchange. It was implicitly presumed that cooperation in terms of jointly implementing measures and projects is the ideal of a network. Yet, cooperation appears not to be the norm and especially complex if market goals are involved. Information exchange is the major means to contribute to solving the problem of a transition to a sustainable society. In some of the actor groups the trust developed through the information exchange, actually had some synergetic effect which might be attributed to the partnership network and thus confirms the assumptions made by Huxham & Vangen (2004) and Glasbergen (2007).

Networks are crucial and the core of all regional partnerships. This focus on establishing contacts and relations to enhance information exchange, corresponds to the main function of partnerships identified by Glasbergen & Groenenberg (2001): partnerships provide and disseminate information. On the issue 'buildings' regional partnerships can also be said to assist in the function of standard setting exercised by the authorities Biermann, Chan et al. (2007, 241).

Most *capacities* are brought into the partnership from outside. The initiation of a transition path is especially supported by political leaders. Such internally motivated actors are not only crucial for the initiation but also the continuation of partnerships. Especially, leadership capacity was also identified as crucial for environmental cities, Local Agenda 21 and small energy regions, as pointed out by Hoppe et al. (2009), Roberts (2000) and Beermann (2009).

It was assumed that knowledge would play a considerable role for regional partnerships' contribution to the transition problem. However, knowledge is rarely produced nor distributed exclusively within the regional partnerships analysed, instead information exchange plays a major role. Thus, Healey (1998) is partly right that actors do not necessarily learn from each other but may recognise their different views.

As anticipated from capacity theory (see Van Loon et al., 2010), investments of participants in finances and personnel are necessary to guarantee that measures for and steps on the transition path are taken. Regarding institutional capacity a loose and non-committal structure turned out adequate but formal relation structures appear to be a requisite for the organisation of a regional partnership. With a view on the planned reduction of formal contact structures in Munich, reconciling invested effort with effectiveness appears crucial.

Accountability capacity was found not to play an influential role for the shape of regional partnerships, this is due to the special relation to the authorities. In all regional partnerships the link to local and regional authorities is strong and partnerships and state are interdependent. The partnerships are a part of the solution to the problem of a transition to sustainable energy society, but the contribution is dependent on the initiative of state actors. The embeddedness in the socio-political context is mostly important at the regional level. It confirms the important role of states in partnerships

suggested by Mol (2007) and Glasbergen et al. (2007).

In conclusion, regional partnerships characteristics appear not that different from approaches studied in the partnership or capacity literature. In relation to partnership theory, the function of regional partnerships can be related to information provision and dissemination. Pragmatic approaches were found to persist in regional partnerships. Moreover, actors are not necessarily from all spheres of society but often actors from market and state dominate. Regarding the local/regional perspective, importance of capacities mostly corresponds with those of different collaborative, municipal or regional approaches in sustainability related topics (see Beermann, 2009), (Roberts, 2000) and (Mander, 2007).

Regional partnerships appear different from less interactive and smaller scale approaches in that they demand actors to think about the implications of a broader reach and more loose structures (These will be shortly elaborated on in the implications beginning on page 9.2.4. The network analysis approach employed in this research adds an emphasis on the relations developed within regional partnerships and the results of network building. This brings in a new element for further research on partnerships in general.

9.2.2. Reflection on the methodology

The comparative case study and the network approach employed are especially useful to outline the characteristics of the defined research object ‘regional partnerships for a transition to sustainable energy society’. However, the study has some limitations relating to the networks, interviews and choice of objects.

The network diagrams are only based on the data gathered in a selection of interviews. Although, the interviewees have been selected to represent the most relevant actors, a more informed choice on the network boundary would have been possible if more time could have been spent to interview all actors of the three regional partnerships. Instead of this all-encompassing and time-consuming approach, this study chose a pragmatic one.

In addition, a predefinition of possible relation categories would have enhanced the reliability of the diagrams. In this research possible categories were only found after having conducted most of the interviews such that indicators were not specifically tested during the interviews. This results in an estimation of relation intensities based on the general information of contacts and relations with other actors of the regional partnerships.

The analysis of the networks might also be flawed to some extent because it relies solely on the researcher’s impression without a validation of the interviewees. A validation was considered but not conducted, mainly due to time constraints. For further research on the topic of regional partnerships and particularly the selected cases, a validation will enhance the reliability and interpretation of the findings. However, in a validation process it has to be considered that actors have their specific angle from which they judge regional partnerships.

Finally, an explorative informal interview with a very involved actor of each regional partnership in the beginning of the research might have clarified crucial points in studying regional partnerships. Implicit differences in the aims of partnerships could then have been considered before conducting the comparative case study. In some points, the fact that the regional partnership of Nuremberg actually has a much stronger focus on economic development than stated in their articles of association and assumed beforehand, sets it slightly apart from Munich’s and Hanover’s partnerships. This dif-

ference is taken into account by using a more pragmatic approach to the problem of sustainable energy society but sometimes makes a comparison of the cases difficult. On the other hand, it Nuremberg's regional partnership a good contrast to the theoretical ideal of partnerships striving for a transition to sustainable energy society.

9.2.3. Recommendations for further research

As indicated in the previous sections, some questions remain unanswered in this research. For example, this thesis has mainly analysed how partnerships can contribute to solving the transition problem. The extent to which regional partnerships contribute is estimated. A thorough evaluation and assessment of the output, outcomes and impact of regional partnerships in the field of sustainable energy would clarify the effectiveness of regional partnerships. As indicated by Biermann, Mol & Glasbergen (2007), a clear attribution of background effects would be crucial. The evaluation would also lead to a better judgement in how far regional partnerships are an effective and useful means to solving the transition problem. Similarly, a thorough comparison of regional partnerships with approaches taken by cities or regions would clarify the contribution of regional partnerships.

The contribution of the analysed regional partnerships to solving the transition problem is considered small. However, the cases are only a small sample of cases in Germany. For a better overview of regional partnership approaches and their potential contribution, a cross-country comparative study could analyse the role of regional partnerships in different socio-political contexts. Successful regional partnerships could serve as best practice for other regions. Furthermore, if the benefit of regional partnerships is found in their broad reach - not acknowledging the involvement of diverse actors - it would be worthwhile to identify other forms of governance or government. Perhaps these can make a bigger step on the transition path and do well integrate different strategies of regional actors. Are there other forms of governance which are able to surmount administrative borders if no formal region with its own responsibilities has been defined?

9.2.4. Implications for the use of regional partnerships

Despite of the mixed picture which arises from the case studies, regional partnerships remain a valuable attempt to solve the transition problem. In particular, because single actors are doubted to be able to achieve a transition on their own. Potential diversity of actors, integration of regional ideas/concepts and the opportunity to go beyond governmental strategies remain advantages of (regional) partnerships.

A regional focus can have certain benefits. First, a larger target group of actors can be reached. Secondly, the integration of plans and strategies of different regional actors is facilitated. This might be especially useful for regional provision with renewable energies and alternative transport systems. Moreover, regional partnerships can reach a broader public which will facilitate solving the transition problem.

It is not deemed possible to give recommendations on forming regional partnerships, in particular because the ones studied are not very successful in terms of contributing to the solution of the transition problem. Moreover, many characteristics of regional partnerships, particularly capacities, resemble collaborative and municipal approaches on which recommendations are abundant. Nevertheless, it appears important to delineate some characteristics of (regional) partnerships. This will also highlight the topics

that organisations which would like to initiate a regional partnership need to take a position on.

The cases studied ultimately and partly indirectly (Nuremberg) aim for a transition to a sustainable energy society. But they have different intermediary objectives and take different approaches. Often the chosen approaches have an ad hoc appearance. The final structure of participants is not pre-determined and formalisations of the regional partnerships are developed throughout the planning process. Some elements of regional partnerships are flexibly adjusted according to current needs. Although, the flexibility and development over time is an advantage of regional partnerships, especially in the first phase of existence, it seems crucial to think about four elements of (regional) partnerships.

How many actors, actors from which region and what kind of actors should be involved in the regional partnerships? A large number of actors and also a large area of origin runs the risk of an active centre and a passive periphery. On the other hand, diverse and wide spread actors may enhance the understanding of the transition problem for urban regions due to their different views.

Secondly, a conscious decision on the package deal can capitalise on the abilities of actors and increase the focus of actions. Some topics related to sustainable energy are more suitable for regional approaches such as mobility and energy provision.

Third, it has to be recognised that the coordination and organisation of actors contact, meetings and groups influences the development of relations and networks in regional partnerships. Here, a preliminary choice on the frequency of contacts and meetings and on either all-encompassing and/or focused interaction is necessary because this influences the development of trust and degree of efficiency.

Finally, the obligations and rights of actors participating in a regional partnership should be decided on. In particular, if partnerships encompass different governmental actors and municipal/regional areas as well as diverse actors from different spheres of society, clear rules facilitate action and interaction. Sanctions or other consequences in response to passiveness will help to bring about a more serious commitment of participants.

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Appendix A.

List of interviews and further case-related data sources

Hanover

- 1) telephone interview with Helke Neuendorf, project manager of ‘Strom sparen’ (energy saving) from the climate protection agency Hanover region; 2010-04-23
- 2) interview with Gernot Hagemann, project manager of the department energy economy of the business development company ‘hannoverimpuls GmbH’; 2010-05-03
- 3) interview with Tobias Timm, deputy managing director of the utility fund ‘proKlima GbR energy fonds’; 2010-05-03
- 4) interview with Heiner Schlote, chairman of Ökostadt e.V., an environmental NGO on solar power and carsharing; 2010-05-03
- 5) interview with Astrid Hoffman-Kallen, the manager of the climate protection unit of the city Hanover (Klimaschutzleitstelle Hannover); 2010-05-04
- 6) interview with Christoph Felten, project manager of ‘Gut beraten starten’ (energetic modernisation of houses) from the climate protection agency Hanover region; 2010-05-05
- 7) interview with Andreas Steege, a managing director of Target GmbH (environmental services company); 2010-05-05
- 8) interview with the Sven Andres, managing director of the association ‘Kompetenzzentrum für Energieeffizienz e.V.’ (centre of excellence for energy efficiency); 2010-05-06
- 9) interview with Jens Ernsting, environmental manager of the public transport company üstra; 2010-05-06
- 10) interview with Katja Busch, representative of Hanover region for environmental issues (Region Hannover, Fachbereich Umwelt); 2010-05-07
- 11) telephone interview with Eberhard Röhrig-van der Meer, chairman of the sponsoring society (Förderverein) / also manager of the environment centre (Umweltzentrum e.V.); 2010-05-12
- 12) telephone interview with Uwe Sahling, the managing director of the climate protection agency Hanover region (Klimaschutzagentur Region Hannover gGmbH); 2010-05-17
- 13) interview with Heinz Wensing, managing director of building society (Bau- und Sparverein); 2010-05-20
- 14) telephone interview with Lothar Schulze, a managing director of the wind power company ‘Windwärts Energie GmbH’; 2010-05-25
- 15) conference paper for OECD workshop on Green Cities on climate protection agency Region Hanover by Potthoff (2009)

- 16) study on strategic governance in climate protection programme of Hanover region by Ecolog gGmbH (2009)
- 17) study 'Klimaschutzwirtschaft in der Region Hannover: Potenziale in Unternehmen und Wissenschaft' (benefits in businesses and science) by Schasse et al. (2004)
- 18) study 'Robuste Pfade und Handlungsvorschläge für ein zukunftsfähiges Energiesystem in der Region Hannover' (energy system of the future) by Schüwer et al. (2004)
- 19) study 'Handlungsperspektive 2020 - Klimaschutz-Rahmenprogramm Hannover' by Bierwirth et al. (2008)
- 20) evaluation of campaign 'Gut beraten starten' by (Stieß & Birzle-Harder, 2010)
- 21) report and powerpoint on 'Klima-Allianz Hannover 2020' (climate alliance of Hanover city)
- 22) Hanover region climate protection framework programme
- 23) list of participants of the actor forums
- 24) further documents and webpages of interviewed actors
- 25) homepage of climate protection region Hanover, <http://www.klimaschutz-hannover.de/>
- 26) homepage of the climate protection agency, <http://www.klimaschutzagentur.de/>
- 27) homepage of Hanover city and Hanover region, environment and climate protection, http://www.hannover.de/de/umwelt_bauen/umwelt/index.html

Nuremberg

- 1) telephone interview with Annegret Weidig, representative of the office for the environment, climate protection and energy planning unit, of the city of Nuremberg (Umweltamt Nürnberg, Bereich Klimaschutz und Energieplanung); 2010-05-18
- 2) telephone interview with Martin Reuter, managing director of 'Energieagentur Mittelfranken' (energy agency); 2010-05-19
- 3) telephone interview with Dr. Jürgen Seeberger, representative of the department of environmental protection and energy of the city of Erlangen (Amt für Umweltschutz und Energiefragen); 20.05.2010
- 4) telephone interview with Thomas Späth, representative of the foundation urban ecology (Stiftung Stadtökologie); 2010-05-26
- 5) telephone interview with Richard Weller, managing director of makon GmbH & Co. KG, holding of Ebert-Ingenieure GmbH & Co. KG' (engineering, facility management); 2010-05-26
- 6) telephone interview with Dr. Susanne Schimmack, scientific officer of the department of environment of the city of Nuremberg (wissenschaftliche Mitarbeiterin, Umweltreferat der Stadt Nürnberg); 2010-05-27
- 7) telephone interview with Dr. Robert Schmidt, representative of the department of environment and innovation of the chamber of commerce of Mittelfranken (Innovation und Umwelt, Industrie- und Handelskammer für Mittelfranken); 2010-05-27
- 8) telephone interview with Robert Spanheimer, employee of initiator of 'Netzwerk Erneuerbare Energien Westmittelfranken' (Büroleiter und wissenschaftlicher Mitarbeiter des Bundestagsabgeordneten Josef Göppel (CSU)); 2010-05-27

- 9) interview with Wilhelm Scheuerlein, representative of chamber of crafts for Mittelfranken (Handwerkskammer für Mittelfranken); 2010-06-02
- 10) double interview with Peter H. Richter, managing director of 'ENERGIEregion Nürnberg e.V.', and Erich Maurer, managing director of 'ENERGIEregion GmbH' and etz; 2010-06-06
- 11) telephone interview with Frank Thyroff, managing director of wbg Nürnberg GmbH (municipal building society); 2010-06-09
- 12) telephone interview with Peter Schmidt, representative of department of economy of Nuremberg city (Wirtschaftsreferat Nürnberg); 2010-05-14
- 13) telephone and e-mail contact with Thomas Hofmann, managing director of FR-Frankensolar GmbH (solar power company); May 2010
- 14) two power point presentations of the European cluster for power electronics (ecpe)
- 15) document of Nuremberg city on climate protection 'Klimaschutzfahrplan 2010/2020 Stadt Nürnberg - Bilanzierung der CO2-Emissionen Entwicklungstendenzen und Erfolgskontrolle'
- 16) document of Erlangen city on energy efficiency 'EnergieeffizientER in Erlangen' from August 2004
- 17) overview of networks and institutions in the metropolitan area Nuremberg from Seeberger
- 18) homepage of 'ENERGIEregion e.V. Nürnberg', <http://www.energieregion.de/>
- 19) homepage of Nuremberg city, department for environment, <http://www.umwelt.nuernberg.de/>
- 20) homepage of Erlangen city, department for environment, <http://www.erlangen.de/desktopdefault.aspx/tabid-110/>

Munich

- 1) interview with Florian Paul, representative of public transport company Munich Verkehrsgesellschaft; head of panel on sustainable mobility; 07.06.2010
- 2) interview with Gerhard Urbainczyk, representative of the department for health and environment (Referat für Gesundheit und Umwelt, RGU) of Munich city; coordinator of 'Munich for climate protection'; 07.06.2010
- 3) interview with Martin Glöckner, managing director of GreenCity e.V. (environmental NGO); 07.06.2010
- 4) interview with Martin Delker, managing director of Südhausbau KG (housing corporation); head of panel on consistent energy saving; 08.06.2010
- 5) interview with Norbert Amman, representative of chamber of commerce Munich (Industrie- und Handelskammer (IHK) für München und Oberbayern); head of panel on efficient energy use; 08.06.2010
- 6) telephone interview with Andrea Förg, representative of GreenCity Energy GmbH (renewable energies company); 09.06.2010
- 7) telephone interview with Christine Röhl, representative of Arqum GmbH; organisational office of 'Munich for climate protection'; 09.06.2010
- 8) short telephone interview with Daniela Kuborn, managing director of Regional Centre of Expertise Munich on Education for Sustainable Development (Bildung für eine nachhaltige Entwicklung in München (BenE)); 09.06.2010

- 9) interview with Wolfgang Schölkopf, representative of Bavarian Center for Applied Energy Research (Bayrisches Zentrum für Angewandte Energieforschung e.V. (ZAE Bayern)); head of panel on sustainable energy provision; 11.06.2010
- 10) e-mail contact with Roland Gräbel, managing director of centre for building modernisation of Munich city (Bauzentrum); 25.06.2010
- 11) intermediate report of 'Munich for climate protection'
- 12) final report of 'Munich for climate protection'
- 13) 'Munich for climate protection' joint statement
- 14) protocols of panel sessions
- 15) homepage of 'Munich for climate protection',
<http://www.muenchenfuerklimaschutz.de/cms/>
- 16) homepage of Munich city, department for health and environment, http://www.muenchen.de/Rathaus/rgu/wohnen_bauen/energie/39004/index.html
- 17) homepage of 'Gemeinsam', <http://www.gemeinsam-fuer-das-klima.de/>
- 18) homepage of 'Klimaherbst', <http://www.klimaherbst.de/>

Appendix B.

Interview questions

Questionnaire I

I. Gründung

1. Was ist das Hauptziel ihrer Partnerschaft?
2. Aus welchem Grund wurde die Partnerschaft gegründet?
3. Wie sieht laut der Partnerschaft die Zukunft der Region bezüglich Klimaschutz/nachhaltige Energien aus?
4. Steht die Idee einer Partnerschaft auch im Zusammenhang mit der Idee der Energiewende?
5. Wessen Idee war es eine Partnerschaft zu etablieren?

II. Geographischer Fokus

6. Für welchen geographischen Raum gilt die Partnerschaft?

III. Akteure

7. Welche Akteure sind in der Partnerschaft am aktivsten (Umsetzung von Projekten, breite Aktivität)?
8. Wer hat ihrer Meinung nach viel Einfluss in der Partnerschaft?
9. Auf was basiert der Einfluss? (Wissen, Informationen, Geld)
10. Sind Nichtregierungsorganisationen in der Partnerschaft involviert?
11. Wenn ja, auf welche Art sind sie involviert?
12. Wenn nein, warum sind sie nicht involviert?

IV. Inhalt/ Handlungsfelder

13. Welche Handlungsfelder liegen im Fokus der Partnerschaft?
14. Wurden bestimmte Handlungsfelder diskutiert aber nicht in das gemeinsame Programm aufgenommen? Welche Felder wurden nicht in das Programm aufgenommen und warum?
15. Welche der Elemente existierten schon bevor die Partnerschaft gegründet wurde?
16. Welche Inhalte wurden mit der Partnerschaft neu aufgenommen?

V. Leitung/Führung

17. Gibt es eine oder mehrere Person, die die Partnerschaft übermäßig beeinflusst, vorantreibt und Akteure mobilisiert?

VI. Organisation/Struktur

18. Wie wird die Arbeit innerhalb der Partnerschaft organisiert, strukturiert? Gibt es zum Beispiel spezielle Foren/Gruppen für unterschiedliche Handlungsfelder?
19. Nutzt die Partnerschaft spezifische Strategien zur Erreichung ihrer Ziele?
20. Wie werden die Akteure über die Aktivitäten der Partnerschaft informiert?
21. Wie werden die Aktivitäten der Partnerschaft nach außen kommuniziert?

VII. Ressourcen

22. Über welche finanzielle Ressourcen kann die Partnerschaft verfügen?
23. Wer sind die Geldgeber?
24. Wie viel Personal wird direkt oder indirekt für die Partnerschaft eingesetzt?

VIII. Autorität/ Legitimität

25. Welche Verantwortung hat die Partnerschaft im Bereich Klimaschutz/ nachhaltige Energien bzw. Welche Aufgaben nimmt sie wahr?
26. Inwiefern ist die Partnerschaft von Entscheidungen der Stadt, der Region abhängig?
27. Wie unterscheidet sich die Verantwortung von der Verantwortung des städtischen Umweltamts?
28. Hat die Partnerschaft das Recht eigene Beschlüsse zu fällen?
29. In welcher institutionellen Form werden Entscheidungen gefällt?
30. Wer hat die Entscheidungsgewalt?

IX. Institutioneller Kontext

31. Welchen Einfluss haben Europäische, nationale und lokale Gesetze auf ihr Handeln in der Partnerschaft?
32. Welchen Einfluss haben Europäische, nationale und lokale Förderprogramme auf ihr Handeln in der Partnerschaft?

X. Evaluation

33. Gibt es ein Programm zur Evaluierung des Erfolgs der Partnerschaft?

XI. Erfolg & Einfluss der Partnerschaft

34. Wie beurteilen sie den Erfolg der Partnerschaft in Bezug auf:
 - a. Hauptziel?
 - b. Reduzierung der CO₂ Emissionen?
 - c. Umsetzung der Projekte?
35. Hat sich seit der Etablierung der Partnerschaft für sie etwas geändert?
36. Werden allgemein mehr Projekte umgesetzt?
37. Welche Fehler oder Probleme sind im Laufe der Partnerschaft aufgetreten?

Questionnaire II

I. Handlungsfelder

1. An welchen Themen und Projekten im Rahmen der Partnerschaft beteiligen Sie sich?
2. Was ist Ihre Aufgabe in der Partnerschaft?

3. Welches Ziel verfolgen Sie mit der Mitgliedschaft in der Partnerschaft?
- II. Beziehungen/Netzwerk
4. Mit welchen anderen Akteure innerhalb der Partnerschaft arbeiten sie häufig zusammen, mit wem kooperieren sie in Projekten?
 5. Arbeiten sie häufig mit Akteuren außerhalb der Partnerschaft zusammen?
 6. Welche Beziehungen haben sie zu den anderen Akteuren in der Partnerschaft?
 7. Wer hat ihrer Meinung nach viel Einfluss in der Partnerschaft?
 8. Auf was basiert der Einfluss? (Wissen, Informationen, Geld)
 9. Gibt es Austausch zwischen den Partnern?
 10. Was wird ausgetauscht? (Wissen, Informationen, Geld?)
 11. Haben Sie das Gefühl, dass manche Akteure mehr Macht in der Partnerschaft haben als andere?
- III. Wissen
12. Welche Rolle spielt ihr eigenes Wissen/ Wissen von außerhalb für ihr Handeln in der Partnerschaft?
 13. Geben Sie ihr Wissen an andere Akteure in der Partnerschaft weiter oder tauschen sie sich aus?
- IV. Kontext
14. Welchen Einfluss haben Europäische, nationale und lokale Gesetze auf ihr Handeln in der Partnerschaft?
 15. Welchen Einfluss haben Europäische, nationale und lokale Förderprogramme auf ihr Handeln in der Partnerschaft?
- V. Einfluss der Partnerschaft
16. Hat sich seit der Etablierung der Partnerschaft für sie etwas geändert?
 17. Setzen Sie mehr Projekte um, ist ihre Arbeit anerkannter?
- VI. Erfolg
18. Ist die Partnerschaft erfolgreich in ihrem Handeln bezogen auf
 - a. Das Hauptziel?
 - b. Reduzierung der CO₂ Emissionen?
 - c. Umsetzung der Projekte?
 19. Welche Fehler oder Probleme sind im Laufe der Partnerschaft aufgetreten?

Appendix C.

Abbreviations used in network diagrams

Hanover

abbreviation	actor
building society	building society 'Bau- und Sparverein e.V.'
centre of excellence	centre of excellence for energy efficiency
communities	communities of Hanover region
craft guilds	representative group of craft guilds
environment centre	environment centre 'Umweltzentrum e.V.'
e.on Avacon	regional power company e.on Avacon
hannoverimpuls	business development company 'hannoverimpuls GmbH'
Hanover region	administration of Hanover region
Hanover city	climate unit of Hanover city
proKlima fund	Hanover utility fund proKlima
regional climate agency	climate protection agency Hanover region
target GmbH	environmental services company 'target GmbH'
üstra	public transport company 'üstra'
Windwärts GmbH	wind power company 'Windwärts Energie GmbH'

Nuremberg

abbreviation	actor
active members	active group of members of the energy region Nuremberg association
EAM	energy agency Mittelfranken
EAO	energy agency Oberfranken
Ebert Ing	engineering & facility management company 'Ebert-Ingenieure GmbH & Co. KG'
ENA R & N	energy advisors of rural districts Roth and Nürnberger Land
Energieregion e.V.	energy region Nuremberg association
Energieregion GmbH	energy region Nuremberg corporation
ER dep environment	department for environment Erlangen
FH Ansbach	applied science university of Ansbach
foundation urban ecology	foundation urban ecology 'Stadtökologie e.V.'
Fürth	department for economy Fürth
HWK	chamber of crafts
IHK	chamber of commerce
Joseph foundation	Christian housing company
N dep environment	department for environment Nuremberg
N dep economy	department for economy Nuremberg
network energy advisors	network energy advisors
network building and energy	network building and energy
network renewables	network renewable energies 'Westmittelfranken'
N utility	Nuremberg utility
Schwabach	department for economy Schwabach
solid	information centre on solar power
universities	universities and applied science universities of Nuremberg

Munich

abbreviation	actor
ADFC	German cyclist federation 'ADFC'
arqum	organising office led by environmental consultancy 'Arqum GmbH'
Bauzentrum	centre for building modernisation
building panel	panel on energy-efficient building
carsharing	representative carsharing company
county administration	county administration 'Kreisverwaltungsamt' of city Munich
dissemination group	working group for education and public relations
efficiency panel	panel on efficient energy use
GEWOFAG	municipal building society
GWG	municipal building society
GreenCity e.V.	environmental NGO 'GreenCity e.V.'
GreenCity Energy	renewable energies company 'GreenCity Energy GmbH'
house owner's assn.	house owner's association 'Haus & Grund'
IHK	chamber of commerce
mayor	third mayor of Munich city
MGS	municipal society for urban renovation 'MGS'
mobility panel	panel on mobility
M utility	Munich utility
mvg	Munich public transport company 'mvg'
provision panel	panel on energy provision
RGU	department for health and environment
Südhausbau	housing corporation
tenant's assn.	tenant's association 'Mieterverein'
ZAE Bayern	Bavarian Center for Applied Energy Research